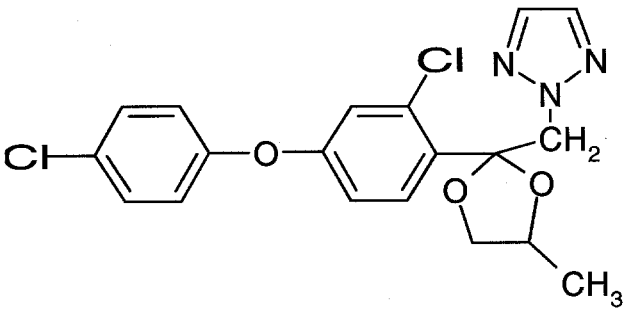
SECTION 3 NEW USE

ENVIRONMENTAL FATE AND EFFECTS SCIENCE CHAPTER

Environmental Fate and Ecological Risk Assessment

For

Difenoconazole
(PC 128847)
1-{2-[4-(chlorophenoxy)-2-chlorophenyl-(4-methyl -1,3-dioxolan-2-yl)-methyl]}
-1H-1,2,4-triazole



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I. EXECUTIVE SUMMARY

A. Nature of Chemical Stressor

Difenoconazole is a broad spectrum, preventive fungicide with systemic and curative properties recommended for the control of many important plant diseases. It was first registered in Aug 4, 1994. The existing difenoconazole uses include wheat, triticale, and canola seed treatment.

The proposed-label evaluated in this risk assessment is Inspire® (100-XXXX) for use on fruiting vegetables, pome fruit, vegetables subgroup (tuberous and corm), sugar beets, and ornamentals. The proposed use pattern for Inspire® is outlined in Table 2 of this document. The maximum proposed single application rate is 0.13 lb a.i./A with annual maximum of 0.56 lb a.i./A for ornamentals, and the single maximum application rate for food uses is 0.11 lb a.i./A, or less, with annual maximum up to 0.44 lb a.i./A.

B. Potential Risk to Non-target Organisms

A screening-level (Level I) risk assessment, based on proposed uses of difenoconazole, suggests that levels of difenoconazole (parent compound only) in the environment, when compared with minimum toxicity values, are likely to result in acute and chronic risk to certain aquatic organisms and chronic risk to birds and mammals. Specifically, risk quotient (RQ) values for those taxonomic groups exceed Levels of Concern (LOCs) established by the Agency for the screening-level risk assessment. Based on the potential for direct effects to these taxa, there may be potential indirect effects to species of concern that depend on these taxa as a source of food, habitat, pollination, etc. Specific risks to non-target organisms are summarized as follows:

Aquatic Organisms

Freshwater fish and aquatic invertebrates; estuarine/marine fish and mollusks; and aquatic plants are not at risk acutely from exposure to difenoconazole at the proposed application rates. LOCs were exceeded for the following proposed uses:

- Chronic LOCs are exceeded for freshwater and estuarine/marine fish only for the Maine potato PRZM EXAMS scenario (representing tuberous and corm vegetables; RQ = 1.14 – 1.25).
- Chronic LOCs are exceeded for freshwater invertebrates for the Maine potato, North Carolina sweet potato (representing tuberous and corm vegetables) and the New Jersey ornamental PRZM EXAMS scenario (RQ = 1.08 – 2.04).
- Acute Endangered LOCs are exceeded for estuarine/marine crustaceans (mysid shrimp) for the Maine potato, North Carolina sweet potato, and the New Jersey ornamental PRZM EXAMS scenarios (0.05 – 0.083).
- Chronic LOCs are also exceeded for estuarine/marine crustaceans for all of the uses with RQs almost two orders of magnitude greater than the LOC of 1.0 (RQ > 11.22 – 99.13).

Terrestrial Organisms

Avian and mammalian acute RQs are less than LOCs for all of the proposed crops. Avian chronic RQs exceed LOCs with values ranging from 1.36 to 4.68 for all food groups, except fruits, pods, seeds, and large insects. Mammalian dose-based chronic RQs exceed LOCs for all of the proposed uses with values ranging from 1.02 to 35.60 for mammals up to 1000 grams consuming all modeled food groups except seeds. Mammalian dietary-based chronic RQs also exceed LOCs for all of the proposed uses with values ranging from 1.19 to 4.10 for mammals consuming all modeled food groups except fruits, pods, seeds, and large insects.

Risk quotients were not calculated for terrestrial plants because the results of the toxicity study were qualitative. The phytotoxicity test included observations of visible effects on seedling emergence and vegetative vigor. It was determined that the potential for difenoconazole to have adverse effects on terrestrial plants is low.

EFED currently does not quantify risks to terrestrial non-target insects, however, difenoconazole was classified as practically non-toxic based on the acute contact honey bee study (LD_{50}>100 µg/bee); therefore, the potential for this fungicide to have adverse effects on pollinators and other beneficial insects is low.

Listed Species

A summary of the potential for direct and indirect effects to listed species, summarized by taxonomic group, is provided in **Table 1**. Birds, mammals, terrestrial plants, and aquatic organisms were identified as being of potential concern for direct and indirect effects.

The LOCATES database (version 2.10) was used to identify federally-listed endangered or threatened species in the United States where the proposed crops are grown. Growing areas for these crops encompasses most of the United States and therefore, there are several hundred species which are found in counties where the proposed crops are grown. A tabulation of the number of unique listed species that occur in the same county of difenoconazole use, by crop and by state is provided in **Table 20**. By this tabulation, the proposed uses with the highest numbers of potentially affected listed species are ornamentals (997 species), followed by fruiting vegetables (980 species), tuberous and corm vegetables (927 species), pome fruit (884 species) and sugar beets (123 species). Currently, none of the taxa can be discounted since for many, direct effects are expected and, in addition, indirect effects may be important for some species in all taxa given the risks of difenoconazole. A more refined assessment should involve clear delineation of the action area associated with uses of difenoconazole and best available information on the temporal and spatial co-location of listed species with respect to the action area. This analysis has not been conducted for this assessment.

Table 1. Listed Species Risks Associated With Direct or Indirect Effects Due to Applications of Difenoconazole		
Listed Taxonomy	**Direct Effects**	**Indirect Effects**
Terrestrial and semi-aquatic plants – monocots	Unknown [g]	Yes [f]
Terrestrial and semi-aquatic plants – dicots	Unknown [g]	Yes [f]
Terrestrial invertebrates	No	No
Birds	Chronic	Yes [c, d, e]
Terrestrial phase amphibians	Chronic [b]	Yes [c, d, e]
Reptiles	Chronic [b]	Yes [c, d, e]
Mammals	Chronic	Yes [c, d, e]
Aquatic vascular plants	No	No
Aquatic non-vascular plants [a]	No	No
Freshwater fish	Chronic (ME potato scenario)	Yes [c, d, e]
Aquatic phase amphibians	Chronic [b]	Yes [c, d, e]
Freshwater crustaceans	Chronic	No
Estuarine/marine Mollusks	No	No
Estuarine/marine crustaceans	Acute and Chronic	No
Estuarine/marine fish	Chronic (ME potato scenario)	Yes [e]

[a] At the present time no aquatic non-vascular plants are included in Federal listings of threatened and endangered species. The taxonomic group is included here for the purposes of evaluating potential contributions to indirect effects to other taxonomy and as a record of exceedances should future listings of non-vascular aquatic plants warrant additional evaluation of Federal actions.
[b] Terrestrial phase amphibians and reptiles estimated using birds as surrogates. Aquatic amphibians estimated using freshwater fish as surrogates.
[c] Chronic LOC exceeded for some feeding guilds and size classes of birds.
[d] Chronic LOC exceeded for some feeding guilds and size classes of mammals.
[e] Potential Risk to freshwater and estuarine/marine crustaceans.
[f] Indirect effects may be caused by plants that rely on affected mammals, birds, amphibians, and reptiles as pollinators.
[g] Risk cannot be precluded because the terrestrial plant toxicity test was qualitative.

C. Conclusions - Exposure Characterization

Environmental fate and transport data indicate that difenoconazole is persistent (laboratory and field half-lives ($t_{1/2}$) ranged from 85 days to over 1 year), and slightly mobile in the soil environment. The overall stability of the compound suggests that under some soil conditions, difenoconazole may accumulate in the soil with successive application year to year. Difenoconazole foliary applied to vegetables, pome fruits, and ornamentals has potential to reach surface water via runoff, erosion and spray drift, but is less likely to reach ground water.

D. Conclusions - Effects Characterization

Difenoconazole is highly toxic to freshwater (LC_{50} = 810 µg ai/L) and estuarine/marine

(LC_{50} = 819 µg ai/L) fish. Chronic growth effects were observed in freshwater fish (NOAEC = 8.7 µg ai/L). The pesticide is highly toxic to freshwater invertebrates (LC_{50} =770 µg ai/L), estuarine/marine oysters (EC_{50} = 424 µg ai/L), and estuarine/marine crustaceans (LC_{50} = 150 µg ai/L). Reproductive chronic effects were observed for freshwater fish (NOAEC = 8.7 µg ai/L) and invertebrates (NOAEC = 5.6 µg ai/L). Reproductive chronic effects were also observed for estuarine/marine mysids (NOAEC < 0.115 µg ai/L). Chronic toxicity studies were not available for estuarine/marine fish; the estimated NOAEC is 8.8 µg ai/L based on acute-to-chronic ratios of freshwater fish toxicity.

Aquatic plant data were submitted for four species of algae studies and one vascular plant (*Lemna gibba*). The most sensitive algae was the marine diatom (*Navicula pelliculosa*) (EC_{50} = 0.098 mg/L, NOAEC = 0.053 mg/L). The *Lemna gibba* toxicity tested resulted in an EC_{50} of 1.9 mg/L, EC_{05} = 0.11 mg/L.

Difenoconazole is slightly toxic to mammals on an oral acute basis (LD_{50} = 1453 mg/kg bw). The chemical is practically non-toxic to birds on an acute oral basis (LD_{50} > 2150 mg/kg bw). It is practically non-toxic to the mallard duck (LC_{50} > 5000 mg/kg diet) and slightly toxic to the bobwhite quail (LC_{50} = 4760 mg/kg diet) on a subacute dietary basis. Reproductive chronic effects were observed in birds (NOAEC = 21.9 mg ai/kg-diet based on bobwhite quail hatchling weight) and mammals (NOAEC = 25 mg ai/kg-diet). Difenoconazole is practically non-toxic to honeybees on an acute contact basis (LD_{50} > 100 µg ai/bee). The results of acute testing of difenoconazole on earthworms resulted in a LC_{50} > 610 mg ai/kg dw of substrate, based on no significant effects on survival or weight change.

A visible phytotoxicity (including evaluations of seedling emergence and vegetative vigor) test was carried out on terrestrial plant species. No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A).

E. Key Uncertainties and Information Gaps

The following uncertainties and information gaps were identified:

- Difenoconazole may break down to form triazolyl acetic acid and further to triazole methanol and triazole. 1,2,4-Triazole and its conjugates (triazole alanine and triazole acetic acid) are common metabolites to the class of compounds known as the triazole-derivative fungicides (T-D fungicides, conazoles). A separate cumulative risk assessment was conducted on 1,2,4-trizole degradates. The Office of Pesticide Program's Health Effects Division (HED) has conducted aggregate human health risk assessments for 1,2,4-triazole and triazole conjugates which was completed on Feb 7, 2006 (D320683). The Tier II drinking water assessment for 1,2,4-triazole was completed in Feb 28, 2006 (D320682). The potential adverse effect of triazole on the ecological environment for the proposed uses was not addressed in this risk assessment.

- Before difenoconazole breaks down to triazole, it forms CGA205375, (1-[2-Chloro-4-(4-chlorophenoxy)-phenyl]-2-[1,2,4]triazol-1-yl-ethanol). CGA205375 has potential to be

slightly more mobile in the soil than difenoconazole, based on the registrant-submitted adsorption/desorption study. The potential adverse effect of this degradate on the ecological environment was not addressed in this risk assessment. If this degradate is shown to have potential ecological or human health concern, additional fate and transport studies may be requested at later time.

- No data were available to assess the chronic toxicity of difenoconazole to estuarine/marine fish. The LC_{50}s for estuarine/marine fish were comparable to the LC_{50}s for freshwater fish, suggesting similar acute sensitivity to difenoconazole. In the absence of data, the acute to chronic ratio (ACR) from the freshwater fish data was used to estimate a NOAEC for estuarine/marine fish. The most conservative acute value of 819 µg ai/L was used for estuarine/marine fish. The most sensitive LC50 value for freshwater fish (810 µg ai/L, rainbow trout) and chronic NOAEC value (8.7 µg ai/L, fathead minnow) were used to estimate a fish ACR. An estimated NOAEC value of 8.8 µg ai/L was derived for estuarine/marine fish. Uncertainties with this calculation include species sensitivity and extrapolation error, given that quantified sensitivity factors do not currently exist. The ACR relied on extrapolating from freshwater to estuarine/marine environments and between two freshwater fish species, the rainbow trout and the fathead minnow, which may have different sensitivities to this chemical.

- Chronic estuarine/marine crustacean toxicity was based on a mysid shrimp life cycle toxicity test which resulted in a non-definitive NOAEC < 0.115 µg ai/L for reproductive effects (number offspring/female/reproduction day). There were significant adverse effects on reproductive success at all treatment levels compared to the negative control (42-68%). There is uncertainty associated with the calculated non-definitive RQ values for chronic effects to mysid shrimp which range from >11.22 to > 99.13 for all the proposed uses.

- A qualitative phytotoxicity test (including observations of visible effects on seedling emergence and vegetative vigor) was carried out on terrestrial plant species. No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A). At the proposed application rates, adverse affects to non-target terrestrial plants are not expected based on the visually phytotoxicity; however, there are uncertainities associated with these conclusions because definitive RQs cannot be calculated.

- There is uncertainty associated with risk to sediment dwelling organisms. Because difenoconazole is persistent, risk to sediment dwelling organisms should be evaluated, however, a toxicity study was not provided. Estimated pore water concentrations indicated that the concentrations of difenoconazole in the sediment are similar to that in the water column. A sediment toxicity test study determining the toxicity of difenoconazole residues to benthic organisms would reduce this uncertainty.

II. PROBLEM FORMULATION

A. Stressor Source and Distribution

1. Chemical and Physical Properties

Common Name:	Difenoconazole
Synonyms:	Inspire®
Chemical Name (CAS):	1-{2-[4-(chlorophenoxy)-2-chlorophenyl-(4-methyl -1,3-dioxolan-2-yl)-methyl]} -1H-1,2,4-triazole
CAS Registry No.	119446-68-3
PC Code:	128847
Molecular Formula:	$C_{19}H_{17}Cl_2N_3O_3$
Molecular Weight:	406.27
Physical State:	Red Liquid
Vapor Pressure (@ 25 °C):	3.32E-05 mPA @ 25 °C
Specific Gravity/ Density:	1.14g/cm^3 @ 25 °C
Solubility in water (@ 25 °C):	15.0 mg/L @ 25 °C

2. Mode of Action

Difenoconazole is a fungicide in the conazole chemical class. Fungicidal activity of the conazole class of compounds is attributed to the inhibition of ergosterol biosysthesis (www. centerwatch.com /patient/drugs/dru784.html). Ergosterol is a critical component in fungal cell membranes which controls cell membrane permeability (www.hull.ac.uk/php/chsanb/fungweb/fungweb7.htm). The mechanism of controlling ergosterol biosysthesis is through the disruption of the fungal cyctochrome P-450-mediated 14 a-lanosterol demethylation. Accumulation of 14 α-methyl sterols correlates with the subsequent loss of ergosterol in the fungal cell wall.

3. Use Characterization

Difenoconazole is a broad spectrum, preventive fungicide with systemic and curative properties recommended for the control of many important plant diseases. It was first registered in Aug 4, 1994; the existing difenoconazole uses include wheat, triticale, and canola seed treatment. In addition, it was assessed for seed treatment of sweet corn, barley and cotton (Dividend Extreme), and barley (Dividend XL RTA).

This risk assessment addresses proposed new uses for difenoconazole foliar treatment on pome fruits, sugar beets, fruiting vegetables, vegetables, tuberous and corm, subgroup, and ornamentals. Difenoconazole end-use product examined in this risk assessment is Inspire® (23.2% difenoconazole).

Product information for use on Fruiting Vegetables, Pome Fruit, Vegetables Subgroup (Tuberous and Corm), Sugar Beets, and Ornamentals:
Product Name: Inspire®
Active Ingredient: Difenoconazole 23.2%
Other Ingredients[1] 76.8%
Total 100.0%
Contains 2.08 lbs of active ingredient per gallon of difenoconazole
(EPA Reg. No. 100-XXXX)

The proposed label specifies the maximum individual application rates as high as 0.13 lbs ai/A with the maximum seasonal application rate 0.56 lbs ai/A for non-food uses (ornamental), and 0.11 lbs a.i./A and 0.44 lbs a.i./A, respectively, for food uses (Table 2). The calculated total number of applications per season (based on the maximum seasonal application) range as high as five (pome fruits) with minimum application interval of seven days for all proposed uses. Applications may be made by ground, chemigation (except for pome fruits), or aerial method.

The registrant-proposed ornamental uses include outdoor application to ornamentals by commercial and non-commercial (i.e., homeowner) applicators. Carnations, gladiolus, irises, and roses are proposed to be treated with difenoconazole for rust and powder mildew (roses only). The method of application to ornamentals was not specified, thus it was assumed that, both aerial and ground applications are allowed.

For sugar beets, Inspire must be alternated with a non-triazole fungicide registered for use on sugar beets. For vegetables and pome fruits it is recommended that Inspire be used in blocking program using a maximum of two consecutive applications before rotating to fungicides with another mode of action registered for those uses. Difenoconazole has pre-harvest intervals of 7 days for sugar beets, and 14 days for pome fruits and vegetables, tuberous and corm, subgroup.

Application parameters used for modeling are specific to each crop and are provided in Table 2. Where number of allowed application was not specified on the label, it was assumed based on the single maximum and annual maximum application rates. For sugar beets and ornamentals, the estimated allowed number of applications is four per season. However, it should be noted that four times the single maximum application rate to ornamentals equals slightly less than the annual maximum application rate proposed by the registrant in Inspire label.

[1] Contains petroleum distillates

Table 2. Use Patterns of Difenoconazole for Fruiting Vegetables, Pome Fruit, Vegetables Subgroup (Tuberous and Corm), Ornamentals, and Sugar beets					
Crop	Maximum Individual Application Rate lbs a.i./A (kg a.i./ha as modeled)	Number of Applications	Minimum Application Interval (days)	Maximum Application Rate per Season in lbs a.i./A/season	Application Method
Fruiting Vegetables	0.11 (0.12)	4 [b]	7	0.44	A, G, Ch
Pome Fruits	0.07 (0.08)	5 [b]	7	0.35	A, G
Vegetables, Tuberous and Corm, Subgroup [a]	0.11 (0.12)	4 [b]	7	0.44	A, G, Ch
Sugar beets	0.11 (0.12)	ns	7	0.44	A, G, Ch
Ornamentals	0.13 (0.15)	ns	7	0.56	ns

[a] Potatoes and other crops in this subgroup: Yam, Ginger, Arrowroot, Artichoke, Canna, Cassava, Chufa, Chayote etc.
[b] Calculated based on the maximum individual and seasonal application rate. **Inspire® (100-XXXX) is recommended to be used in blocking program of 2 consecutive applications.**
A = aerial, G = ground, Ch = chemigation
ns - not specified, however, calculated as four applications per year

B. Assessment Endpoints

Assessment endpoints are defined as "explicit expressions of the actual environmental value that is to be protected." Defining an assessment endpoint involves two steps: 1) identifying the valued attributes of the environment that are considered to be at risk, and 2) operationally defining the assessment endpoint in terms of an ecological entity (i.e., birds or mammals) and its attributes (i.e., survival and reproduction). Therefore, selection of the assessment endpoints is based on valued entities (i.e., ecological receptors), the ecosystems potentially at risk, the migration pathways of pesticides, and the routes by which ecological receptors are exposed to pesticide-related contamination. The selection of clearly defined assessment endpoints is important because they provide direction and boundaries in the risk assessment for addressing risk management issues of concern.

1. Ecosystems Potentially at Risk

Ecosystems potentially at risk are expressed in terms of the selected assessment endpoints. The typical assessment endpoints for screening-level pesticide ecological risks are reduced survival, and reproductive and growth impairment for both aquatic and terrestrial animal species. For both aquatic and terrestrial animal species, direct acute and direct chronic exposures are considered. In order to protect threatened and endangered species, all assessment endpoints are measured and considered at the individual level. Although all endpoints are measured at the individual level, they provide insight about risks at higher levels of biological organization (e.g. populations and communities). For example, pesticide effects on individual survivorship have important implications for both population rates of increase and habitat carrying capacity.

The typical assessment endpoints for screening-level pesticide ecological risks are reduced survival and growth impairment for both aquatic and terrestrial plants. The assessment

endpoints used for terrestrial plants are seedling emergence and vegetative vigor and the concern is for the perpetuation of populations of both non-target crop and non-crop plant species. Although these endpoints may not address all the issues with regard to all aspects of the terrestrial plant life-cycles, it is assumed that impacts at these stages indicate a potential impact to individual competitive ability and reproductive success.

Aquatic plants use the measured endpoints of alga growth rates and measured plant biomass as well as similar measurements for vascular plants. These endpoints provide insights into the maintenance and growth of standing crop or biomass of aquatic plant life.

The ecological relevance of selecting the above-mentioned assessment endpoints is as follows: 1) complete exposure pathways exist for these receptors; 2) the receptors may be potentially sensitive to pesticides in affected media; and 3) the receptors could potentially inhabit areas where pesticides are applied, or areas where runoff and spray drift may impact the sites because suitable habitat is available.

2. Ecological Effects

Each assessment endpoint requires one or more "measures of ecological effect," which are defined as changes in the attributes of an assessment endpoint itself or changes in a surrogate entity or attribute in response to exposure to a pesticide. Ecological measurement endpoints for the screening level risk assessment are based on a suite of registrant-submitted toxicity studies performed on a limited number of organisms in the following broad groupings:

i. Birds (mallard duck, bobwhite quail), also used as a surrogate for terrestrial phase amphibians and reptiles,
ii. Mammals (laboratory rat),
iii. Freshwater Fish (rainbow trout and fathead minnow), also used as a surrogate for aquatic phase amphibians,
iv. Freshwater invertebrates (waterflea),
v. Estuarine/marine fish (sheepshead minnow),
vi. Estuarine/marine invertebrates (Eastern oyster, mysid),
vii. Aquatic plants (freshwater vascular plants, freshwater and estuarine/marine non-vascular plants),
viii. Terrestrial plants (monocots and dicots).

Within each of these very broad taxonomic groups, an acute and chronic endpoint is selected from the available test data, as the data sets allow. Additional ecological effects data were available for other taxa and have been incorporated into the risk characterization as other lines of evidence, including acute contact and oral toxicity on honeybees and earthworms.

A complete discussion of all toxicity data available for this risk assessment and the resulting measurement endpoints selected for each taxonomic group are included in Section III.B of this document. A summary of the assessment and measurement endpoints selected to characterize potential ecological risks associated with exposure to fluopicolide is provided in **Table 3**.

Table 3. Summary of Assessment and Measurement Endpoints for Difenoconazole	
Assessment Endpoint	Measurement Endpoint
1. Abundance (i.e., survival, reproduction, and growth) of individuals and populations of birds	1a. Mallard duck acute oral LD_{50} 1b. Bobwhite Quail dietary LC_{50} 1c. Bobwhite Quail chronic reproduction NOAEC and LOAEC
2. Abundance (i.e., survival, reproduction, and growth) of individuals and populations of mammals	2a. Laboratory rat acute oral LD_{50} 2b. Laboratory rat chronic reproduction NOAEC and LOAEC
3. Survival and reproduction of individuals and communities of freshwater fish and invertebrates	3a. Rainbow trout acute LC_{50} 3b. Fathead minnow chronic (early-life) NOAEC and LOAEC 3c. Water flea acute LC_{50} 3d. Water flea chronic (life-cycle) NOAEC and LOAEC
4. Survival and reproduction of individuals and communities of estuarine/marine fish and invertebrates	4a. Sheepshead minnow acute LC_{50} 4b. Estimated chronic NOAEC value for estuarine/marine fish based on the acute-to-chronic ratio for freshwater fish 4c. Eastern oyster and mysid shrimp acute LC_{50} 4d. Mysid chronic NOAEC
5. Perpetuation of individuals and populations of non-target terrestrial and semi-aquatic species (crops and non-crop plant species)	5a. Monocot and dicot seedling emergence and vegetative vigor visible phytotoxicity test
6. Survival of beneficial insect populations	6a. Honeybee acute contact LD_{50} 6b. Earthworm acute LD_{50}
8. Maintenance and growth of individuals and populations of aquatic plants from standing crop or biomass	7a. Vascular plant (i.e., duckweed) and Nonvascular EC_{50} values for growth rate and biomass measurements

LD_{50} = Lethal dose to 50% of the test population.
NOAEC = No observed adverse effect level.
LOAEC = Lowest observed adverse effect level.
LC_{50} = Lethal concentration to 50% of the test population.
EC_{50}/EC_{25} = Effect concentration to 50%/25% of the test population.

C. Conceptual Model

1. Risk Hypotheses

The Office of Pesticide Programs uses a screening risk hypothesis for its initial risk assessments:

The proposed use of difenoconazole on pome fruits, sugar beets, fruiting vegetables, vegetables, tuberous and corm, subgroup, and ornamentals in accordance with the label results in adverse effects on the survival and/or fecundity to non-target terrestrial and/or aquatic animals; and that the proposed use of difenoconazole according to the label results in adverse effects on survival, reproduction, and/or growth to aquatic, semi-aquatic, and terrestrial plants.

2. Conceptual Model Diagram

In order for a chemical to pose an ecological risk, it must reach ecological receptors in biologically significant concentrations. An exposure pathway is the means by which a contaminant moves in the environment from a source to an ecological receptor. For an ecological exposure pathway to be complete, it must have a source, a release mechanism, an environmental transport medium, a point of exposure for ecological receptors, and a feasible route of exposure. The potential mechanisms of difenoconazole transformation (i.e., which degradates may form in the environment, in which media, and how much) is not addressed in this risk assessment. The assessment of ecological exposure pathways includes an examination of the source and potential migration pathways for constituents, and the determination of potential exposure routes (e.g., ingestion, inhalation, dermal absorption).

Ecological receptors that may potentially be exposed to the parent difenoconazole include terrestrial and semiaquatic wildlife (i.e., mammals, birds, and reptiles), semi-aquatic plants, and soil invertebrates. In addition to terrestrial ecological receptors, aquatic receptors (e.g., freshwater and estuarine/marine fish and invertebrates, amphibians) may also be exposed to potential migration of pesticides from the site of application to various watersheds and other aquatic environments via runoff.

The source and mechanism of release of difenoconazole are foliar ground and aerial application. The mechanisms of difenoconazole transportations are surface water runoff, soil erosion, spray drift. Leaching into groundwater was not considered based on submitted terrestrial field dissipation studies that showed that difenoconazole and its degradates have low potential to leach. Surface water runoff from the areas of application is assumed to follow topography. Spray drift will follow the wind directions. Potential emission of volatile compounds is not considered as a viable release mechanism for difenoconazole, since volatilization is not expected to be a significant route of dissipation for this chemical because of the low vapor pressure of the compound. Only dietary exposure is included in the exposure assessment. Other exposure routes are possible for animals in treated areas. These routes include ingestion of contaminated drinking water, ingestion of contaminated soils, dermal contact, inhalation, and preening. Given that difenoconazole is soluble in water there exists the potential to dissolve in runoff and puddles on

the treated field may contain the chemical. Incidental ingestion of residues on soil could be an important pathway because of difenoconazole's persistence in soils. Further refinement may be necessary to explore this pathway. The conceptual site models shown in Figure 1 generically depict the potential source of difenoconazole, release mechanisms, abiotic receiving media, and biological receptor types. All potential routes of exposure are considered and are presented in the conceptual site model (Figure 1).

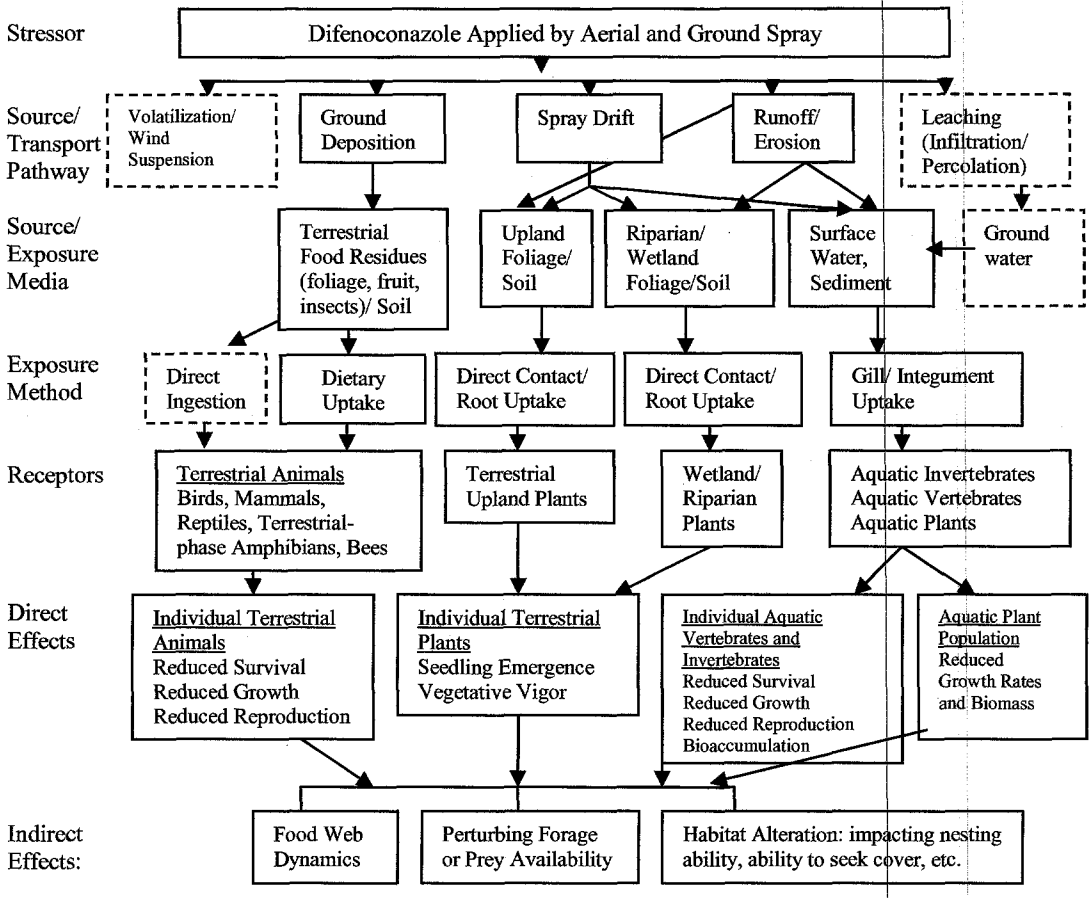


Figure 1. Conceptual model depicting ecological risk based on the proposed difenoconazole application[2]. Exposure pathways in dotted boxes are not evaluated due to the insignificance in this risk assessment.

[2] Any potential adverse effects of difenoconaole degradates are not assessed in this risk assessment.

III. ANALYSIS

A. Exposure Characterization

1. Environmental Fate and Transport Characterization

In soil environment, difenoconazole is persistent and slightly mobile. Difenoconazole has low potential to reach ground water, except in soils of high sand and low organic matter content. During a runoff event, difenoconazole will potentially runoff into adjacent bodies of surface water. In aquatic environment, difenoconazole main route of dissipation is partitioning into the bottom sediment as shown in an aerobic aquatic metabolism study (MRID 42245134), in which the distribution ratio of sediment and water phases was 8:1 at 1 day post treatment and 40:1 at 30 days post treatment. Difenonconazole undergoes potentially relatively fast to slow aqueous photolysis in clear water conditions.

Difenoconazole was stable to hydrolysis at pH 5, 7, and 9 in aqueous buffered solutions maintained at 25 °C over the course of a 30 day incubation period (MRID 42245128). Based on the registrant-submitted laboratory studies, difenoconazole may potentially undergo relatively fast photolysis in natural aquatic environment. The photolytic degradation may be attributable to absorption by organic components present in the natural water. Aqueous photolysis of difenoconazole in sterile buffer solutions proceeded with the half-lives of 6 and 228 days (MRIDs: 42245128 and 46950105). The half-life of 228 days was extrapolated from a 15-day study in which difenoconazole slowly photolyzed from 100% to 91% under artificial light conditions (supplemental study; MRID 46950105). Difenoconazole was stable to soil photolysis.

Difenoconazole is relatively stable to aerobic soil metabolism, stable to anaerobic soil metabolism, and aerobic and anaerobic aquatic metabolism. When applied at 0.1-0.23 ppm to an aerobic soil, difenoconazole appear to degrade with half-lives ranging from 84.5 to 533 days based on laboratory studies conducted on variety of soils, European and domestic origin. At concentrations of 10 ppm, difenoconazole degraded with the half-lives of 1059-1600 days in aerobic, and 947 days anaerobic loam soil, respectively. The longer half-life values obtained for those higher concentration rates may imply that the rate of difenoconazole microbialy mediated degradation may be concentration dependent.

In aquatic environment under aerobic conditions, difenoconazole microbialy degraded with half-lives ranging from 315 to 565 days at concentrations up to 0.17 mg ai/L, and 860 days in concentration of 10 mg ai/L. Under anaerobic conditions, difenoconazole degraded with 370 days at concentration of 0.04 mg ai/L, and 1245 days at concentrations of 10 mg ai/L.

During aqueous photolysis, difenoconazole breaks down to triazolyl acetic acid (CGA-142856) and is further degraded to triazole methanol (CGA-107069) and triazole (CGA-71019). Minimal carbon dioxide is also produced (MRID 46950104). In aerobic soil (MRID 46950109-12), difenoconazole degrades slowly to CGA 205374, which in turn degrades to CGA 205375, CGA 189138 and other minor compounds, and these are mineralized to CO_2 (formed up to 23%, MRID 46950111) and converted to bound residues (upto 48.9% of the applied at 293 days,

MRID 46950110).

According to the Food and Agriculture Organization of the United Nations classification system (UN FAO, 2000), difenoconazole appears to be slightly mobile in soils. Freundlich K_{ads} values were 12.8 for sand soil, 63.0 for sandy loam soil, 54.8 for silt loam soil, and 47.2 for silty clay loam soil. The corresponding Koc values were 3867, 3518, 3471, and 7734 mL/g. (MRID 42245135). In another study, registrant-calculated Freundlich adsorption K values were 11.6, 22.9, 182, and 201 for the Madera loamy sand, Visalia sandy loam, North Dakota clay loam, and Florida sand soils, respectively; corresponding Freundlich Koc values were 3870, 4587, 4799, and 11202.

Difenoconazole major degradate, CGA205375 (1-[2-Chloro-4-(4-chlorophenoxy)-phenyl]-2-[1,2,4]triazol-1-yl-ethanol), has potential to be slightly more mobile in the soil than its parent fungicide. Freundlich adsorption K values for CGA205375 are 9.6, 12.3, 145, and 116 for the Madera loamy sand, Visalia sandy loam, North Dakota clay loam, and Florida sand soils, respectively; corresponding Freundlich Koc values are 3214, 2470, 3824, and 6432 (MRID 46950123). According to the UN FAO classification, CGA205375 appears to be slightly mobile. In addition, the K_{ads} values are directly proportional to soil organic carbon content.

Submitted terrestrial field dissipation studies showed that difenoconazole and its degradates did not leach below 30 cm of soil depth except in one study that it leached up to 60 cm of the cropped plot soil (under potato production conditions in ND; MRID 46950129). Difenoconazole degraded with half-lives ranging from 136 to 462 days in the terrestrial field dissipation studies.

Based on difenoconazole low vapor pressure of 2.5×10^{-10} mm Hg and solubility in water of 15 mg/L, difenoconazole has a low propensity to volatilize and generate vapors after application. At the study termination in the laboratory studies, the residues detected in the organic volatiles trap totaled 0.7% or less, most instances less than 0.1%, of the applied difenoconazole. The concentrations of the applied defenoconazole lost through volatilization were not measured in the terrestrial field dissipation studies.

Difenoconazole accumulated rapidly in edible and non-edible bluegill sunfish tissues with bioconcentration factors of 170x for edible tissues, 570x for nonedible tissues, and 330x for whole body. Depuration was also rapid with a depuration half-life of approximately 1 day and 96-98% clearance after 14 days of depuration. From both edible and non-edible tissues, one metabolite was recovered, CGA-205375, and accounted for 51-64% of the applied.

Table 4 summarizes the environmental fate data of the parent difenoconazole. A summary table of difenoconazole major degradates and the maximum percent formation observed in the laboratory and field studies is presented in **Table B-1 and Table B-2, Appendix B** of this document.

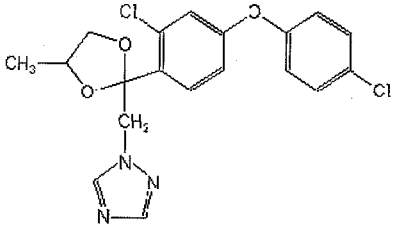
Table 4. Summary of the physical and chemical properties of difenoconazole.		
Property	**Value**	**Source**
Name	Difenoconazole	
SMILES notation	O1CC(C)OC1(Cn2ncnc2)c3c(Cl)cc(Oc4ccc(Cl)cc4)cc3	EPI Suite, v3.12 SMILES
Structure		
CAS number	119446-68-3	
Molecular weight	406.27	MRID 46950104
Molecular formula	$C_{19}H_{17}Cl_2N_3O_3$	
Water solubility	15 mg/L (25 °C)	MRID 46515901
log K_{ow}	4.4 (25 °C)	MRID 46950105
Vapor pressure	2.5 x 10^{-10} mm Hg (25 °C)	MRID 46515901
Henry's Law constant	8.9 x 10^{-12} atm x m^3/mol	MRID 46515901
Soil adsorption coefficient K_{oc} (L/kg)	3867, 3518, 3471, and 7734 3870, 4587, 4799, and 11202	MRID 42245135[A] MRID 46950121
Hydrolysis half-life pH = 5 pH = 7 pH = 9	 Stable Stable Stable	 MRID 42245127
Photolysis half-life in water	6 days – ca. 1 ppm in sterile buffer solution (30-day study) ca. 9.2 days – 1mg ai/L in natural water 228 days – 1.52 ml ai/L in sterile buffer solution (15-day study)	MRID 42245128 MRID 46950104 MRID 46950105[B]
Photolysis half-life in soil	349 - 823 days	MRID 46950106[C]
Aerobic soil metabolism half-life	84.5 days – at 0.1 ppm concentration 1600 days – at 10 ppm in loam 1059 days – at 10 ppm in sandy loam 120 days – at 0.13 ppm; Swiss loam 104 days – at 0.13 ppm; Swiss loam 165 (158) days – at 0.23 ppm; Swiss sandy loam 204 (187) days – at 0.23 ppm; Swiss sandy loam/loamy sand 204 (198) days – at 0.23 ppm; French silty clay loam 433 (408) days – at ca. 0.1 ppm in CA loamy sand at 25 °C 533 days – at ca. 0.1 ppm in CA loamy sand at 25 °C	MRID 42245131 MRID 42245132[D] MRID 42245133[D] MRID 46950109 MRID 46950110 MRID 46950111 MRID 46950112 MRID 46950114

Table 4. Summary of the physical and chemical properties of difenoconazole.		
Property	**Value**	**Source**
Anaerobic soil metabolism half-life	947 days – at 10 ppm in loam	MRID 42245132
Aerobic aquatic metabolism half-life	860 days (10mg a.i./L) 315 (330) days (nominal 0.1 kg a.i./ha (=0.17 mg a.i./L); Swiss pond water-silty clay loam sediment) 335 (301) days (0.17 mg a.i./L; Swiss river water-sandy loam sediment) 565 days (0.04 mg a.i./L)	MRID 42245134 [E] MRID 46950116 MRID 46950117
Anaerobic aquatic metabolism half-life	1245 days (10mg a.i./L) 370 days (433) (0.04 mg a.i./L)	MRID 42245134 [E] MRID 46950119
Terrestrial field dissipation half-life	252 days - determined in the 0- to 3-inch depth – CA bare loamy sand 231 days – GA bare loamy sand (four applications of 0.13 lb ai/A) 139 days – CA bare plot of loam soil (four applications of 0.13 lb ai/A) 462 days – ND bare sandy clay loam	MRID 42245140 MRID 46950126 MRID 46950127 MRID 46950129
Laboratory accumulation in fish bioaccumulation factor (*Lepomis macrochirus*) a depuration half-life	170x in edible tissues 570x nonedible tissues 330x for whole body 1 day	MRID 42245142

[A] There was another adsorption/desorption study (MRID 42245136) reviewed in which the test soils were autoclaved prior to conducting the study which could distort the mobility characteristic of difenoconazole, thus, the study results were not used for calculation of modeling input parameters.
[B] For the modeling purposes the longest half-life was used as it represents the most conservative scenario.
[C] The soil photolysis half-life under xenon light condition was recalculated to represent the conditions under natural sunlight intensity during 30-day periods between June and September (104.7-246.9 W·min/cm^2), as a result, a range of half-lives was obtained.
[D] In those aerobic soil metabolism studies (MRID 42245132 and MRID 42245133) the test application rate was significantly higher than expected under registrant-proposed use condition for difenoconazole.
[E] In those aquatic metabolism studies, the test application rates were significantly higher than expected under registrant-proposed use condition for difenoconazole.

2. Aquatic Resource Exposure Assessment

No ground or surface water monitoring data are available for difenoconazole. Therefore, exposure concentrations of difenoconazole for aquatic ecosystems assessments were estimated based on the EFED aquatic Tier II model PRZM/EXAMS. A graphical user interface (pe4v01.pl), developed by the EPA (http://www.epa.gov/oppefed1/models/water), was used to facilitate inputting chemical and use specific parameters into the appropriate PRZM input files (inp) and EXAMS chemical files. This approach employs PRZM, which simulates runoff and erosion from an agricultural field on a daily time step. The runoff and erosion flux output data from PRZM, combined with spray drift, are used as chemical loadings to EXAMS, which simulates surface water in order to predict the EECs. EECs for ecological risk assessment were determined using PRZM 3.12/EXAMS 2.98.04 with Pond modeling scenario, which describes a generic scenario for the EXAMS component of the modeling exercise. The assessment was based on the proposed use of difenoconazole on pome fruits (PA, FL, and OR apple scenarios), fruiting vegetables (CA and FL tomato scenarios, and FL bell peppers), tuberous and corm

subgroup vegetables (ID and ME potato scenarios, and NC sweet potato scenario), and sugar beets (CA and MN sugar beets scenarios). For non-agricultural uses on ornamentals, six ornamental outdoor nursery scenarios were modeled, these were OR, CA, TN, MI, FL, and NJ ornamental scenarios. These senarios were developed following a spatial analysis and a selection of six regions from the top 10 states and top counties within those states with the largest acreage of outdoor ornamental nurseries (refer to Figures 1 and 2, Appendix C). Rankings were computed based on 2002 USDA census of agriculture data for the following outdoor ornamental nursery categories: 1) floriculture crops - bedding/garden plants, cut flowers and cut florist greens, foliage plants, and potted flowering plants, (total); 2) nursery stock; and 3) other nursery and greenhouse crops. For more information on modeling exposure in outdoor nurserie refer to Syracuse Research Corporation Report No. SRC TR-06-081 (2006). Table 5 lists the input parameters used for the aquatic exposure modeling.

Table 5. PRZM/EXAMS Chemical Specific Input Parameters for Difenoconazole.

Parameter	Input Value and Unit	Source
Maximum application rate	Crop specific	Product Label Inspire® (EPA Reg. No. 100-XXXX)
Maximum number of applications	Crop specific	Product Label Inspire® (EPA Reg. No. 100-XXXX)
Method of application (CAM = 2)	Aerial and ground spray	Product Label Inspire® (EPA Reg. No. 100-XXXX)
Minimum interval between applications	Crop specific	Product Label Inspire® (EPA Reg. No. 100-XXXX)
Application efficiency	0.95 (aerial spray) 0.99 (ground spray)	EFED Model Input Guidance, Version II (2002)
Spray drift	0.05 (aerial), and 0.01 (ground)	EFED Model Input Guidance, Version II (2002)[a]
Partition coefficient K_{oc}[b]	5381 mL/g	MRIDs: 42245135 and 46950121
Application date	Crop specific	
Henry's Law constant	8.9×10^{-12} atm x m^3/mol	MRID 46515901
Hydrolysis	Stable	MRID 42245127
Aerobic soil metabolism ($t_{1/2}$)[c]	313 days	MRIDs.: 42245131, 46950109-12, and 46950114
Aerobic aquatic metabolism ($t_{1/2}$)[d]	556 days	MRIDs.: 46950116 & 46950117
Anaerobic aquatic metabolism ($t_{1/2}$)[e]	1110 days	MRID 46950119
Aquatic photolysis $t_{1/2}$ (days)[f]	228 days	MRID 46950105
Vapor pressure	2.5×10^{-10} mm Hg (25 °C)	MRID 46515901
Solubility in water[g]	150 mg/L (25 °C)	MRID 46515901
Molecular Weight	406	MRID 46950104
Foliar dissipation	Default value	

[a] *Guidance for Selecting Input Parameters in Modeling the Environmental Fate and Transport of Pesticides, Version II"* dated February 28, 2002.
[b] There was a positive correlation between the K_F values *vs.* organic matter content; therefore, the average K_{oc} was used as an parameter.
[c] The 90% of the UCL of the mean metabolism half-life.
[d] The 90% of the UCL of the mean metabolism half-life of all available half-lives but those obtained for high test rate.
[e] At proposed application rate only one half-life was available, the half-life was multiplied by three (i.e., 3 x 370 days).
[f] The maximum value available.
[g] Solubility 15 mg/L x 10.

Application timing was selected based on data from the USDA Crop profile website

(http://pestdata.ncsu.edu/cropprofiles/) and planting dates data from the PRZM crop scenarios. Sugar beets are typically planted in spring, and harvested in the fall in Minnesota, while they are planted almost every month somewhere in the state of California. An application date of June 15 was chosen for each PRZM sugar beet scenario. For pome fruits, the types of fungus that is responsible for damage is apple scab. The critical period to control apple scab is from green-tip through first or second cover. In North Carolina, the disease is rarely a problem after second cover because warm temperatures are not conducive to secondary cycles. April 14 was selected for the first application date to North Carolina apples, 27 April to Pennsylvania apples, and 1 May to Oregon apples (7 days after the emergence). The nation's leading potato producer is Idaho, where potato planting begins April 1 in the Southwest, and ends June 10 in the East. Harvest begins after tuber maturity, usually beginning July 15, and continuing through November 15, moving from the southwestern part of the state to the east. A starting application date of June 20 was chosen for the Idaho and Maine scenarios (ca. 20 days after crop emergence), and 5 June for North Carolina sweet potato scenario. In production of fresh market tomatoes, California, behind Florida, ranks second in the nation. The San Joaquin Valley south of Merced County produces about 30% of the fresh market tomatoes. Fresh market tomatoes are planted from February to March with a harvest period from mid-June into September. The major disease organisms targeted by difenoconazole include powdery mildew and black mold mostly occurring when environmental conditions of mild temperatures and high humidity are present. High daytime air temperatures favor powdery mildew expression and damage. Crop damage is primarily sunburn and resulting cull fruit or secondary mold on sunburned fruit. Black mold is a disease of ripe tomato fruit that appears in the field after rain or periods of heavy dew. For California scenario, a starting date of August 1 was selected, and for Florida 5 March, a month prior the harvest day.

PRZM/EXAMS surface water EEC values for each of the modeled crop scenarios are summarized in **Table 6**. Difenoconazole peak EEC levels ranged from 1.43 ppb, from an air blast application to apples in Oregon, to 12.4 ppb, from an aerial application to potato in Maine. Although according to the label, the proposed individual (0.15 kg ai/ha) and season application rate for ornamental nurseries are the highest, the EECs for ornamental nurseries were not greater than the EECs for the proposed application rate for potatoes (0.13 kg ai/ha)). This may be due to different envonmental settings, i.e. soil and weather conditions, coupled with the application timing, in those scenarios. Ornamental nurseries are not abundant in high acreage in Maine where potatoes are commonly grown (refer to Figure 3, Appendix D). The selected modeling output files are provided in **Appendix D** of this document.

Because difenoconazole is persistent, concentrations in sediment should be evaluated. Pore water concentrations were determined using PRZM-EXAMS for two of the proposed uses which indicated that the concentrations of difenoconazole in the sediment are similar to that in the water column. The use scenario with the highest EECs, Maine potatoes, resulted in peak water column and pore water concentrations for aerial application of 12.4 and 10 μg a.i./L, respectively. Pore water concentrations were also determined for the Pennsylvania apple scenario and resulted in peak water column and pore water concentrations for aerial application of 6.9 and 5 μg a.i./L, respectively.

Table 6. Difenoconazole EECs (ppb or µg/L) obtained from PRZM/EXAMS.			
Scenario	**Peak**	**21-Day Value**	**60-Day Value**
Applications to Ornamentals			
OR Aerial spray	3.58	3.29	3.10
OR Ground spray	2.17	1.91	1.80
CA Aerial spray	5.58	4.90	4.34
CA Ground spray	4.94	3.86	3.51
NJ Aerial spray	7.50	6.05	5.54
NJ Ground spray	6.43	5.11	4.47
MI Aerial spray	5.24	4.73	4.46
MI Ground spray	3.80	3.36	3.19
TN Aerial spray	5.57	5.11	4.80
TN Ground spray	4.56	4.06	3.92
FL Aerial spray	6.36	5.10	4.77
FL Ground spray	5.70	4.44	4.30
Applications to Sugar Beets			
MN Aerial spray	4.14	3.54	3.38
MN Ground spray	3.00	2.47	2.31
CA Aerial spray[1]	3.09	2.49	2.34
CA Ground spray[1]	2.62	1.97	1.75
Applications to Apples			
PA Aerial spray	6.91 (5.0)[2]	5.83 (4.99)	5.56 (4.97)
PA Ground spray	6.17	5.13	4.86
NC Aerial spray	4.57	3.67	3.42
NC Ground spray	4.06	3.09	2.75
OR Aerial spray	2.37	2.23	2.14
OR Ground spray	1.43	1.29	1.25
Applications to Tomatoes			
CA Aerial spray	3.64	2.99	2.72
CA Ground spray	3.08	2.40	2.18
FL Aerial spray	6.20	5.13	4.80
FL Ground spray	5.90	4.80	4.46
Florida Bell Peppers			
Aerial spray	5.56	4.58	4.23
Ground spray	5.24	4.11	3.78
North Carolina Sweet Potato			
Aerial spray	9.29	8.10	7.43
Ground spray	8.79	7.49	6.83
Applications to Potato			
ID Aerial spray	2.34	2.14	2.03
ID Ground spray	0.99	0.85	0.81
ME Aerial spray	12.4 (10.2)	11.4 (10.2)	10.9 (10.1)
ME Ground spray	11.7 (9.35)	10.5 (9.35)	10.0 (9.34)

[1] The OP scenario was used

[2] Pore water concentrations. In parenthesis are provided pore water concentrations for some crops.

3. Terrestrial Organism Exposure Modeling

Terrestrial wildlife exposure estimates are typically calculated for birds and mammals emphasizing a dietary exposure route for uptake of pesticide residues on vegetative matter and insects. These exposures are considered as surrogates for terrestrial-phase amphibians as well as reptiles. The application method for all proposed uses of difenoconazole is aerial and ground application to ornamentals, fruiting vegetables, tuberous vegetables, sugar beets, and pome fruit. For exposure to terrestrial organisms, pesticide residues on food items are estimated, based on the assumption that organisms are exposed to a single pesticide residue in a given exposure scenario. The residue estimates from spray applications are based on a nomogram by Hoerger and Kenaga (1972) as modified by Fletcher et al. (1994) that correlated residue levels, based on application rate, on various terrestrial items immediately following application in the field. The *maximum* residue concentration for each food group was derived from literature and tolerance data. Specifically, for every 1 lb ai/acre of application, the resulting maximum concentration on short grass is 240 ppm, on tall grass is 110 ppm, on broad-leaved plants/small insects is 135 ppm, and on seeds/large insects is 15 ppm. For every 1 lb ai/acre of application, the resulting mean concentration on short grass is 85 ppm, on tall grass is 36 ppm, on broad-leaved plants/small insects is 45 ppm, and on seeds/large insects is 7 ppm.

Determination of residue dissipation over time on food items following single and multiple applications are predicted using a first-order residue degradation half-life with EFED's "T-REX_v1.2.3" model. A default value of 35 days was used for a foliar dissipation parameter because difenoconazole magnitude of the residues studies did not provide reliable, statistically robust data suitable to estimate a valid foliar dissipation half-life (refer to Section IV.D.3).

The screening-level risk assessment for difenoconazole uses maximum predicted residues as the measure of exposure to estimate risk. The predicted maximum residues of difenoconazole that may be expected to occur on selected avian or mammalian food items immediately following application (at the maximum annual or seasonal label rate) is presented in Table 6.

The residues or estimated environmental concentrations (EECs) on food items may be compared directly with subacute dietary toxicity data or converted to an ingested whole body dose (single oral dose), as is the case for small mammals and birds. A single oral dose represents a very short-term high intensity exposure, where as dietary exposure may be of a more prolonged nature. The EEC is converted to oral dose by multiplying the EEC by the percentage of body weight consumed as estimated through allometric relationships. These consumption-weighted EECs (i.e. EEC equivalent dose) are determined for each food source and body size for mammals (15, 35, and 1000 g) and birds (20, 100, and 1000 g). The EEC equivalent doses for birds and mammals are given in Tables 7 and 8, respectively.

Table 7. Peak Terrestrial EECs Estimated Using Kenaga Values for Difenoconazole Applied to Ornamentals, Vegetables, and Pome Fruit.			
Forage Type	**Maximum Residue (ppm)**		
	Ornamentals	**Vegetables**	**Pome**
Short grass	102.59	86.81	64.89
Tall grass	47.02	39.79	29.74
Broadleaf plants and small insects	57.71	48.83	36.50
Fruits/pods/large insects	6.41	5.43	4.06

Table 8. Avian EEC equivalent dose adjusted for body weight for difenoconazole application on ornamentals four times per year.			
EEC equivalent dose (mg/kg-body weight)	Avian Classes and Body Weights		
	small 20 g	mid 100 g	large 1000 g
Percent Body Weight Consumed	114%	65%	29%
Short Grass	116.84	66.63	29.83
Tall Grass	53.55	30.54	13.67
Broadleaf plants/small insects	65.72	37.48	16.78
Fruits/pods/large insects	7.30	4.16	1.86

Table 9. Mammalian EEC equivalent dose adjusted for body weight for difenoconazole application on ornamentals four times per year.						
EEC equivalent dose (mg/kg-body weight)	Mammalian Classes and Body weight					
	Herbivores/ Insectivores			Granivores		
	15 g	35 g	1000 g	15 g	35 g	1000 g
Percent Body Weight Consumed	95%	66%	15%	21%	15%	3%
Short Grass	97.81	67.60	15.67			
Tall Grass	44.83	30.98	7.18			
Broadleaf plants/sm Insects	55.02	38.03	8.82			
Fruits/pods/seeds/lg insects	6.11	4.23	0.98	1.36	0.94	0.22

TerrPlant Model was created by the Environmental Fate and Effects Division (EFED) as a Tier 1 model to provide screening level estimates of exposure to terrestrial plants from single pesticide applications. TerrPlant derives pesticide EECs in runoff and in drift. For difenoconazole, EECs were not calculated for terrestrial plants because the toxicity test was qualitative. The test included observations of visible effects on seedling emergence and vegetative vigor. No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A). At the proposed application rates, adverse affects to non-target terrestrial plants are not expected based on the observation based phytotoxicity testing completed; however, definitive RQs cannot be calculated.

B. Ecological Effects Characterization

1. Evaluation of Aquatic and Terrestrial Ecotoxicity Studies

In screening-level ecological risk assessments, effects characterization describes the types of effects a pesticide can produce in an organism or plant. This characterization is based on registrant-submitted studies that describe acute and chronic toxicity effects information for various aquatic and terrestrial animals. Other sources of information, including reviews of the open literature and the Ecological Incident Information System (EIIS), are conducted to further refine the characterization of potential ecological effects.

Appendix D summarizes the results of the registrant-submitted toxicity studies used to characterize effects for this risk assessment. Toxicity testing reported in this section does not represent all species of birds, mammals, or aquatic organisms. Only a few surrogate species for both freshwater fish and birds were used to represent all freshwater fish (2000+) and bird (680+) species in the United States. For mammals, submitted acute studies were limited to the rat. A chronic estuarine/marine fish toxicity study was not submitted by registrant. Also, OPP guidelines for toxicity testing do not require that reptiles and amphibians be tested. In the absence of toxicity information on reptiles, the risk assessment assumes that avian and reptilian toxicities are similar. In the absence of toxicity information on reptiles, it is assumed that fish and amphibians have similar toxicities.

For acute toxicity, difenoconazole is classified as slightly toxic to birds, non toxic to honeybees and is slightly toxic to mammals. Difenoconazole is moderately to highly toxic to freshwater fish and highly toxic to freshwater invertebrates, estuarine/marine fish and estuarine/marine invertebrates. Five aquatic plant toxicity studies were submitted which demonstrated difenoconazole toxicity to aquatic plants. A visible phytotoxicity (including emergence and mortality) test was carried out on seedling emergence and vegetative vigor of terrestrial plant species. Tables 10 and 11 summarize the most sensitive ecological toxicity endpoints for aquatic and terrestrial organisms respectively. Discussions of the effects of difenoconazole on aquatic and terrestrial taxonomic groups are presented below.

Table 10. Summary of Acute and Chronic Aquatic Toxicity Data Using Difenoconazole					
Species	**Acute Toxicity**			**Chronic Toxicity**	
	96-hr LC_{50} (µg ai/L)	**48-hr EC_{50} (µg ai/L)**	**Acute Toxicity Classification (MRID)**	**NOAEC / LOAEC (µg ai/L)**	**Affected Endpoints (MRID)**
Rainbow Trout *Oncorhynchus mykiss*	810	--	highly toxic (42245107)	--	--
Fathead minnow *Pimephales promelas*	--	--	--	NOAEC = 8.7 LOAEC = 19.0	larval length at 30 days post hatch (42245115)
Water flea *Daphnia magna*	--	770	highly toxic (42245110)	NOAEC = 5.6 LOAEC =13.0	number of young/adult/ reproduction day and adult length (42245114)
Sheepshead minnow *Cyprinodon variegatus*	819	--	highly toxic (42245112)	NOAEC = 8.8*	--
Eastern oyster *Crassostrea virginica*	--	96hr EC_{50} = 424	highly toxic (42906701)	--	--
Mysid shrimp *Americamysis bahia*	150	--	highly toxic (42245111)	NOAEC < 0.115	number of young/adult/ reproduction day (46950133)
Duckweed (*Lemna gibba*)	EC_{50} = 1900		469205-04	--	--
FW Diatom (*Navicula pelliculosa*)	EC_{50} = 98		469205-08	--	--

* A chronic estuarine/marine fish study was not provided. Estimated value is based on the assumption that the estuarine/marine fish acute to chronic ratio is similar to the freshwater fish acute to chronic ratio.

Table 11. Summary of Acute and Chronic Toxicity Data for Terrestrial Organisms Exposed to Difenoconazole.

Species	Acute Toxicity				Chronic Toxicity	
	LD_{50}	Acute Oral Toxicity (MRID)	5-day LC_{50}	Subacute Dietary Toxicity (MRID)	NOAEC / LOAEC	Affected Endpoints (MRID)
Bobwhite quail			4579 mg ai/kg-diet	Slightly toxic (42245103)	NOAEC = 21.9 mg ai/kg-diet LOAEC = 108 mg ai/kg-diet	significant reduction in hatchling body weight observed at 108 mg ai/kg-diet significant reduction is eggs laid occurred at 539 mg ai/kg-diet; (46950202)
Mallard duck	>2150 mg ai/ kg-bwt	practically non toxic (42245105)				
Laboratory rat	1453 mg ai/kg-bwt	slightly toxic (42090006)				
Laboratory rat					NOAEC = 25 mg ai/kg-diet LOAEC = 250 mg ai/kg-diet	decreased maternal body weight gain, decreased pup weights at day 21 (42090018)
Honey bee	>100 µg ai/bee	practically non toxic (42245124)				
Earthworm	> 610 mg/kg dw	42245125				
Terrestrial Plants	No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A)					469502-03

Acute Toxicity to Freshwater Fish

Toxicity data are available for acute freshwater fish for difenoconazole. Results of acute toxicity tests with freshwater fish are tabulated in Table E1. Because the LC_{50} values for the species tested range between 810 to1200 µg ai/ L with toxicity tests for rainbow trout and bluegill sunfish respectively, difenoconazole is classified as moderately to highly toxic to freshwater fish on an acute exposure basis. For this risk assessment, the LC_{50} = 810 µg ai/L was used for determination of the freshwater fish Acute RQ. Acute toxicity testing with rainbow trout (MRID 422451-07) and bluegill sunfish (MRID 422451-09) are consistent with Guideline §72-1(a) and §72-1(c) testing requirements and are classified as acceptable.

Chronic Toxicity to Freshwater Fish

A freshwater fish early life stage test using the TGAI was submitted for difenoconazole (MRID 422451-15) using the preferred test species, fathead minnow (Table E-3). Under the conditions of the test the NOAEC was 8.7 and the LOAEC was 19.0 µg ai/L, and the most sensitive biological parameter was larval length at 30 days post hatch. This study was classified as supplemental because the relative standard deviation for fish weight (50%) in one of the control replicates was greater than the acceptable level of 40% variability. In addition, contamination with the test chemical was observed in two control replicates.

Acute Toxicity to Freshwater Invertebrates

Acute toxicity data for difenoconazole using the TGAI are available for the preferred test species, *Daphnia magna* (Table E-2). The 48-hr LC_{50} value for daphnids was 770 µg ai/L (MRID 422451-10). Based on the results of this study, which is scientifically sound and classified as acceptable, difenoconazole is categorized as highly toxic to the daphnid on an acute toxicity basis. Mortality and/or sublethal effects were observed in all treatment groups.

Chronic Toxicity to Freshwater Invertebrates

A freshwater aquatic invertebrate life-cycle test using the TGAI was submitted for difenoconazole (MRID 422451-14) using the preferred species, *D. magna* (Table E-4). The respective NOAEC and LOAEC values were 5.6 µg a.i./L and 13.0 µg a.i./L, based on mean measured concentrations. The number of young per adult per reproduction day and adult length were significantly reduced at concentrations greater than or equal to 13 µg ai/L. The study is scientifically sound, consistent with Guideline §72-4(b). This study was upgraded to acceptable classification.

Acute Toxicity to Estuarine/Marine Fish

Two estuarine/marine fish acute toxicity tests using the TGAI were submitted for difenoconazole using the preferred test species, sheepshead minnow (MRIDs 422451-12 and 429067-02). Both of these studies were classified as Acceptable. The results of these tests are

provided in Table D-1. The 96 hour LC_{50} of 819 µg ai/L classifies difenoconazole highly toxic to the sheepshead minnow (MRID 422451-12).

Chronic Toxicity to Estuarine/Marine Fish

No data were available to assess the chronic toxicity of difenoconazole to estuarine/marine fish. The LC_{50}s for estuarine/marine fish were comparable to the LC_{50}s for freshwater fish, suggesting similar acute sensitivity to difenoconazole. In the absence of data, an approach based on the acute to chronic ratio (ACR) from the freshwater fish data was used to estimate a NOAEC for estuarine/marine fish. The most conservative acute value of 819 µg ai/L was used for estuarine/marine fish. The most sensitive LC50 value (810 µg ai/L, rainbow trout) and chronic NOAEC value (8.7 µg ai/L, fathead minnow) for freshwater fish were used to estimate a fish ACR. An estimated NOAEC value of 8.8 µg ai/L was derived for estuarine/marine fish based on the assumption that the acute (LC_{50}) to chronic (NOAEC) ratio for estuarine/marine fish (819 µg ai/L: chronic) is the same as freshwater fish (810 µg ai/L : 8.7µg ai/L). There are uncertainties with calculating this acute to chronic ratio for freshwater fish because it involves extrapolating between two freshwater fish, the rainbow trout and the fathead minnow. These species may have different sensitivities to this chemical. In addition, extrapolation from freshwater to estuarine/marine chronic NOAEC values is possible; however, there is uncertainty associated with this assumption because quantifiable taxonomic sensitivity factors between the two broad categories of fish do not exist.

Acute Toxicity to Estuarine/Marine Invertebrates

Acute difenoconazole toxicity data are available for mysid shrimp and the Eastern oyster and are summarized in Table E-2. The 96-hour mysid shrimp LC_{50} is 150 µg ai/L (MRID 422451-11); therefore, difenoconazole is classified as highly toxic to estuarine/marine crustaceans on an acute exposure basis. The acute mysid study is scientifically sound and is classified as acceptable. Difenoconazole is also highly toxic to mollusks, with an $EC_{50} > 300$ µg ai/L (MRID 42245113). This acute mollusk study is scientifically sound is classified as acceptable. An additional mollusk study was submitted that resulted in an $EC_{50} = 424$ µg ai/L (MRID 42906701). This acute mollusk study is scientifically sound is classified as acceptable. For this risk assessment, the $EC_{50} = 424$ µg ai/L was used for determination of the estuarine/marine mollusk acute RQ because it is a definitive value.

Chronic Toxicity to Estuarine/Marine Invertebrates

The life cycle toxicity of difenoconazole to mysids (*Americamysis bahia*) was assessed over 28 days and is summarized in Table E-5. The NOAEC value for reproduction based on number offspring/female/ reproduction day was <0.115 µg ai/L. A definitive NOAEC for reproduction could not be determined because there were significant adverse effects on reproductive success at all treatment levels compared to the negative control (42-68%). The NOAEC value for growth based on male dry weight was 0.311 µg ai/L. The most conservative endpoint (NOAEC < 0.115 µg ai/L) was used in risk assessment.

This toxicity study is classified as supplemental because there was a slight difference (3%) between negative and solvent control for female body length of solvent control mysids. Female body length was lower (3-5%) than the negative control at all treatment levels. In addition, this study is classified as supplemental because a nondefinitive NOAEC was not determined for reproduction and relatively high analytical variability was observed at all treatment levels except nominal 3.00 µg ai/L, with measured concentrations exceeding 20% among results (24-43% difference).

Toxicity to Aquatic Plants

Aquatic plant data were submitted for four species of alga studies and one vascular plant (*Lemna gibba*) as required by EPA guidelines. Details of these studies are presented in Table E-5. Three of the non-vascular plant studies were classified as acceptable and included a freshwater green algae (*Pseudokirchneriellam subcapitata,* EC_{50} = 0.30 mg a.i./L, MRID 469205-12), a freshwater diatom (*Navicula pelliculosa,* EC_{50} = 0.098 mg a.i./L, MRID 469205-08) and a marine diatom (*Skeletonema costatum,* EC_{50} = 0.43 mg a.i./L, MRID 469205-10). The vascular plant, duckweed (*Lemna gibba*) indicated an EC_{50} = 1.90 mg/L (MRID 469205-04) which was classified as acceptable. In addition, a freshwater, blue-green algae (*Anabean flos-aquae*, MRID 469205-06) was submitted, however this study was classified as invalid due to instability of the test substance and variability in the test results. For the purposes of this risk assessment, the most sensitive algae, the marine diatom (*Navicula pelliculosa*) was used (EC_{50} = 0.098 mg/L, NOAEC = 0.053 mg/L) for calculations of risk quotients and the *Lemna gibba* (EC_{50} of 1.9 mg/L, EC_{05} = 0.11 mg/L) was used to represent vascular plants.

Acute and Subacute Toxicity to Birds

The acute oral LD_{50} in the mallard duck exceeded the highest dose tested (>2150 mg ai/kg-bw, MRID 42245105; Table E-7). There was no mortality during the study. Difenoconazole is classified as practically non-toxic to birds on an acute exposure basis. The study is classified as acceptable.

The results of the dietary studies for the preferred test species, bobwhite quail and mallard duck, are summarized in Table E-7. In the quail dietary study (MRID 42245103), the LC_{50} = 4579 mg ai/kg-diet, which categorizes difenoconazole as slightly toxic to the bobwhite quail on an acute dietary basis. In the mallard dietary study (MRID 42245104), the LC_{50} exceeded the highest test concentration, >5000 mg ai/kg-diet, which categorizes difenoconazole as practically non-toxic to the mallard duck on an acute dietary basis. Both dietary studies are classified as acceptable and are consistent with Guideline §71-2 subacute avian dietary testing requirements.

Chronic Toxicity to Birds

Two avian reproduction dietary studies, which are summarized in Table E-8, were

submitted to the Agency. In the mallard duck study (MRID 42245106), significant egg shell thinning was detected at 625 mg ai/kg-diet (p=0.039); no other reproductive effects were noted. Therefore, the NOAEC was determined to be 125 mg ai/kg-diet and the LOAEC was 625 mg ai/kg-diet. The avian reproduction study is scientifically sound; however, it is classified as acceptable (raw data on a per pen basis was submitted).

In the bobwhite quail study (MRID 46950202), there was a significant reduction in hatchling weight at the 108 mg ai/kg diet (6%) and 539 mg ai/kg diet (10%) treatment levels resulting in a NOAEC of 21.9 mg ai/kg diet for growth. Numerous reproductive parameters were significantly reduced at the 539 mg ai/kg treatment level, resulting in a reproductive NOAEC of 108 mg ai/kg diet. The reproductive effects included a reduction in the number of eggs laid, eggs set, viable embryos, live embryos, number hatched, hatchling survival, survivor weights. Additionally, female weight gain was adversely affected the highest treatment level (539 mg ai/kg). This toxicity study is classified as acceptable. The most conservative endpoint (NOAEC = 21.9 mg ai/kg diet) for birds was used in risk quotient calculation.

Acute and Chronic Toxicity to Mammals

In most cases, mammalian toxicity data from the Agency's Health Effects Division (HED) are used to approximate toxicity to wild mammals. However, wild mammal toxicity tests may be required on a case-by-case basis, depending on the results of lower tier toxicity studies such as acute and sub-acute testing, intended use pattern, and pertinent environmental fate characteristics. The registrant has not conducted toxicity testing on wild mammal species. For the purposes of this risk assessment, the available mammalian toxicity data on laboratory mammals was used in the absence of toxicity data on mammalian wildlife (Tables E-9 and E-10).

When administered in an oral dose as a gavage to rats, the resulting LD_{50} was 1453 mg ai/kg-bwt (MRID 420900-06). Chronic effects of difenoconazole were observed in a 2-generation reproduction study with rats (MRID 420900-18) where both the parental and offspring NOAECs were determined to be 25 mg ai/kg-diet and the LOAEC was 250 mg ai/kg-diet. The parental NOAEC was based on decreased maternal body weight gain and the offspring NOAEC was based on decreased pup weights at day 21. These studies are discussed in more detail in the toxicity chapter provided by HED.

Acute Toxicity to Non-target Insects (Honey Bee)

The results of acute contact testing of difenoconazole on the honey bee are summarized in Table D-11. By 48 hours in the contact test, the LD_{50} >100µg a.i./bee (MRID 422451-24). As a result, difenoconazole is categorized as practically non-toxic to honeybees on an acute contact basis.

Acute Toxicity to Earthworms

The results of acute contact testing of difenoconazole on earthworms are summarized in

Table E-12. The LC_{50} was >610 mg ai/kg dw of substrate, as survival was >95% in all treatment groups. No significant differences were detected in any treatment groups relative to the negative control for survival or weight change. The NOAEC and LOAEC based on survival and weight change, were 610 and >610 mg ai/kg dw of substrate. The active ingredient is considered to be non-toxic to earthworms up to concentration of 610 mg ai/kg dw of substrate.

Toxicity to Non-target Terrestrial Plants

A non-GLP study was carried out as a part of routine discovery screening and efficacy test, to investigate the potential for adverse effects of difenoconazole on terrestrial non-target higher plants (MRID 46950203). Using a standardized study protocol, tests were carried out on seedling emergence and vegetative vigor of two monocot and four dicot plant species. Nominal application rates were 0 (negative control), 0.0275, 0.055, 0.11, 0.22 and 0.44 lbs ai/A. The duration of the seedling emergence test was 23 days after application and the duration of the vegetative vigor test was 17 days after application. Visible phytotoxicity (including emergence and mortality) was used as the only toxic endpoint. No phytotoxic effects were observed in any species at any treatment following pre- or post-emergence application.

The study author reported that these studies were conducted following OPPTS 850.4100 and 850.4150 guidance; however, they were conducted as screening tests using visible phytotoxic effects as the only endpoint. This study is classified as SUPPLEMENTAL as the study did not follow guidelines procedures but may provide useful information for qualitative risk assessment purposes. Because there were a limited number of species tested and growth and other required endpoints were not included in this study, the results cannot be used quantitatively in risk assessment.

2. Open Literature Review

A review of the open literature is completed to provide additional information on existing toxicity endpoints commonly used in the screening risk assessment, and to provide insight on endpoints not routinely considered in risk quotient calculations, and effects data on specific taxonomic groups (e.g., amphibians, mussels, etc.). No additional effects information was located in the open literature or in the ECOTOX database for difenoconazole.

3. Incident Data Review

A review of the EIIS database for ecological incidents involving difenoconazole was completed on June 14, 2007. There were no difenoconazole incidents in the database.

Incident reports submitted to EPA since approximately 1994 have been tracked by assignment of I #s in an Incident Data System (IDS), microfiched, and then entered to a second database (in EFED), the Ecological Incident Information System (EIIS). An effort has also been made to enter information to EIIS on incident reports received prior to establishment of current databases. Incident reports are often not received in a consistent format (e.g., states and various

labs usually have their own formats), may involve multiple incidents involving multiple chemicals in one report, and may report on only part of a given incident investigation (e.g., residues).

It is believed that the EFED database contains reports of only a small portion of plant and animal wildlife incidents that actually occur as a result of pesticide use. Mortality incidents must be seen, reported, investigated, and have had investigation reports submitted to EPA to have the potential to get entered into a database. Incidents often are not seen, especially if the affected organisms are inconspicuous or few people are systematically looking, for example. Some reasons that observed incidents may not be reported to appropriate authorities capable of investigating the incident include: the finder may not know of the importance of reporting incidents, may not know who to call, or may not feel they have the time or desire to call.

IV. RISK CHARACTERIZATION

Risk characterization is the integration of exposure and effects characterization to determine the potential ecological risk from the use of difenoconazole and the likelihood of effects on aquatic life, wildlife, and plants based on varying pesticide-use scenarios. No data, however, are available for plants but will be required for further new uses. The risk characterization provides an estimation and a description of the risk; articulates risk assessment assumptions, limitations, and uncertainties; synthesizes an overall conclusion; and provides the risk managers with information to make regulatory decisions.

A. Risk Estimation - Integration of Exposure and Effects Data

Results of the exposure and toxicity effects data are used to evaluate the likelihood of adverse ecological effects on non-target species. For the assessment of difenoconazole risks, the risk quotient (RQ) method is used to compare exposure and measured toxicity values. Estimated environmental concentrations (EECs) are divided by acute and chronic toxicity values. The RQs are compared to the Agency's levels of concern (LOCs). These LOCs are the Agency's interpretive policy and are used to analyze potential risk to non-target organisms and the need to consider regulatory action. These criteria are used to indicate when a pesticide's use as directed on the label has the potential to cause adverse effects on non-target organisms. Appendix F of this document summarizes the LOCs used in this risk assessment.

1. Non-target Aquatic Animals

Surface water concentrations resulting from difenoconazole application to selected crops were predicted with the PRZM-EXAMS model. The assessment was based on the proposed use of difenoconazole on pome fruits (PA, FL, and OR apple scenarios), fruiting vegetables (CA and FL tomato scenarios, and FL bell peppers), tuberous and corm subgroup vegetables (ID and ME potato scenarios, and NC sweet potato scenario), and sugar beets (CA and MN sugar beets scenarios). For non-agricultural uses on ornamentals, six ornamental outdoor nursery scenarios

were modeled, these were OR, CA, TN, MI, FL, and NJ ornamental scenarios.

Peak EECs were then compared to acute toxicity endpoints to derive acute RQs. The 60-day EECs were compared to chronic toxicity endpoints (NOAEC values) to derive chronic RQs for fish, and 21-day EECs were compared to chronic toxicity endpoints for invertebrates. Acute and chronic RQs for freshwater and estuarine/marine organisms are summarized in Table 12.

There are no acute LOCs exceeded for freshwater fish and invertebrates and estuarine/marine fish and mollusks for all of the proposed crops. In addition, there are no LOCs exceeded for aquatic plants. Chronic LOCs are exceeded for freshwater and estuarine/marine fish only for the Maine potatoe scenario based on both the aerial and ground application (RQs = 1.14 – 1.25). Chronic LOCs are exceeded for freshwater invertebrates for the North Carolina apples (aerial), Maine potato (aerial and ground), North Carolina sweet potato (aerial and ground), and the New Jersey ornamental (aerial only) scenarios (RQs = 1.04 – 2.04). Acute Endangered LOCs are exceeded for estuarine/marine crustacean (mysid) for the Maine potato (aerial and ground), North Carolina sweet potato (aerial and ground), and the New Jersey ornamental (aerial only) scenarios (RQs = 0.05 – 0.08). Chronic LOCs are exceeded for estuarine/marine crustaceans for all of the proposed scenarios (RQs range from > 7.39 to > 99.30).

Table 12. Risk Quotients for Aquatic Species for Parent Difenoconazole for Aerial (A) and Ground (G) Application.

Use		Freshwater Fish and Amp. RQs LC_{50} = 810 ppb NOAEC = 8.7 ppb		Freshwater Invertebrate RQs EC_{50} = 770 ppb NOAEC = 5.6 ppb		Estuarine/Marine Fish RQs LC_{50} = 819 ppb NOAEC = 8.8 ppb*		Estuarine/Marine Mysid RQs EC50 = 150 ppb NOAEC <0.115 ppb	
		acute	chronic	acute	chronic	acute	chronic	acute	chronic
Apples (OR)	A	<0.05	0.246	<0.05	0.398	<0.05	0.243	0.016	**>19.391+**
	G	<0.05	0.144	<0.05	0.230	<0.05	0.142	0.010	**>11.217+**
Apples (NC)	A	<0.05	0.393	<0.05	0.655	<0.05	0.389	0.030	**>31.913+**
	G	<0.05	0.316	<0.05	0.552	<0.05	0.313	0.027	**>26.870+**
Apples (PA)	A	<0.05	0.639	<0.05	**1.041+**	<0.05	0.632	0.046	**>50.695+**
	G	<0.05	0.559	<0.05	0.916	<0.05	0.552	0.041	**>44.609+**
Potato (ME)	A	<0.05	**1.253+**	<0.05	**2.036+**	<0.05	**1.239+**	**0.083***	**>99.130+**
	G	<0.05	**1.149+**	<0.05	**1.875+**	<0.05	**1.136+**	**0.078***	**>91.304+**
Potato (ID)	A	<0.05	0.233	<0.05	0.382	<0.05	0.231	0.016	**>18.609+**
	G	<0.05	0.093	<0.05	0.152	<0.05	0.092	0.007	**>7.391+**
Sweet Potato (NC)	A	<0.05	0.854	<0.05	**1.446+**	<0.05	0.844	**0.062***	**>70.435+**
	G	<0.05	0.785	<0.05	**1.338+**	<0.05	0.776	**0.059***	**>65.130+**
Bell Peppers (FL)	A	<0.05	0.486	<0.05	0.818	<0.05	0.481	0.037	**>39.826+**
	G	<0.05	0.434	<0.05	0.734	<0.05	0.430	0.035	**>35.739+**
Tomato (FL)	A	<0.05	0.552	<0.05	0.916	<0.05	0.545	0.041	**>44.609+**
	G	<0.05	0.513	<0.05	0.857	<0.05	0.507	0.039	**>41.739+**
Tomato (CA)	A	<0.05	0.313	<0.05	0.534	<0.05	0.309	0.024	**>26.000+**
	G	<0.05	0.251	<0.05	0.429	<0.05	0.248	0.021	**>20.870+**
Sugarbeet (MN)	A	<0.05	0.389	<0.05	0.632	<0.05	0.384	0.028	**>30.783+**
	G	<0.05	0.266	<0.05	0.441	<0.05	0.263	0.020	**>21.478+**
Sugarbeet (CA)	A	<0.05	0.269	<0.05	0.445	<0.05	0.266	0.021	**>21.652+**
	G	<0.05	0.201	<0.05	0.352	<0.05	0.199	0.017	**>17.130+**
Orna-mentals (NJ)	A	<0.05	0.637	<0.05	**1.080+**	<0.05	0.630	**0.050***	**>52.609+**
	G	<0.05	0.514	<0.05	0.913	<0.05	0.508	0.043	**>44.435+**
Orna-mentals (FL)	A	<0.05	0.548	<0.05	0.911	<0.05	0.542	0.042	**>44.348+**
	G	<0.05	0.494	<0.05	0.793	<0.05	0.489	0.038	**>38.609+**

Table 13. Risk Quotients for Aquatic Species for Parent Difenoconazole for Aerial (A) and Ground (G) Application

Use		Estuarine/Marine Oyster EC50 = 424 ppb	Aquatic Non-Vascular Plant (*Navicula pelliculosa*) EC_{50} = 98 ppb NOAEC = 53 ppb		Aquatic Non-Vascular Plant (*Lemna gibba*) EC_{50} = 1900 ppb NOAEC = 110 ppb	
		acute	Non-endangered	Endangered	Non-endangered	Endangered
Apples (OR)	A	<0.05	0.024	0.045	0.001	0.022
	G	<0.05	0.015	0.027	0.001	0.013
Apples (NC)	A	<0.05	0.047	0.086	0.002	0.042
	G	<0.05	0.041	0.077	0.002	0.037
Apples (PA)	A	<0.05	0.071	0.130	0.004	0.063
	G	<0.05	0.063	0.116	0.003	0.056
Potato (ME)	A	<0.05	0.127	0.234	0.007	0.113
	G	<0.05	0.119	0.221	0.006	0.106
Potato (ID)	A	<0.05	0.024	0.044	0.001	0.021
	G	<0.05	0.010	0.019	0.001	0.009
Sweet Potato (NC)	A	<0.05	0.095	0.175	0.005	0.084
	G	<0.05	0.090	0.166	0.005	0.080
Bell Peppers (FL)	A	<0.05	0.057	0.105	0.003	0.051
	G	<0.05	0.053	0.099	0.003	0.048
Tomato (FL)	A	<0.05	0.063	0.117	0.003	0.056
	G	<0.05	0.060	0.111	0.003	0.054
Tomato (CA)	A	<0.05	0.037	0.069	0.002	0.033
	G	<0.05	0.031	0.058	0.002	0.028
Sugarbeet (MN)	A	<0.05	0.042	0.078	0.002	0.038
	G	<0.05	0.031	0.057	0.002	0.027
Sugarbeet (CA)	A	<0.05	0.032	0.058	0.002	0.028
	G	<0.05	0.027	0.049	0.001	0.024
Orna-mentals (NJ)	A	<0.05	0.077	0.142	0.004	0.068
	G	<0.05	0.066	0.121	0.003	0.058
Orna-mentals (FL)	A	<0.05	0.065	0.120	0.003	0.058
	G	<0.05	0.058	0.108	0.003	0.052

2. Non-target Terrestrial Animals

The EEC values for terrestrial exposure were based on the labeled application rate. Risk quotients are based on the most sensitive LD_{50} (acute oral toxicity study) and NOAEC (chronic toxicity study) for birds and mammals and are calculated by dividing the EEC by the appropriate toxicity endpoint.

Extrapolations from one organism to another in the same class need to consider differences in the scaling of toxicity for differences in body weight. The LD_{50} for birds can be adjusted for body weight based on the formula recommended by Mineau et al.

$$\text{AdjLD}_{50} = \text{LD}_{50}\left(\frac{AW}{TW}\right)^{(a-1)}$$

1996:
where adjusted LD_{50} is the median 50% lethal dose for the species being assessed, LD_{50} is the median lethal dose in the test organism, AW is the body weight of the assessed organism, TW is the body weight for the test organism, and *a* is the slope of the regression line for estimating the assessed species LD_{50} from the test species LD_{50} (EFED default value of 1.15). In the case of assessing a small songbird, 20 g is a suitable value for AW. The test organism is a mallard duck which weighs about 2000 g and had an LD_{50} >2150 mg ai/kg-bwt; therefore, a conservative adjusted LD_{50} for a 20 g bird is 1078 mg ai/kg-bwt.

The LD_{50} for mammals can be adjusted for body weight based on the formula in USEPA (1993):

$$Adj.LD_{50} = LD_{50}\left(\frac{TW}{AW}\right)^{0.25}$$

where adjusted LD_{50} is the median 50% lethal dose for the species being assessed, LD_{50} is the median lethal dose in the test organism, AW is the body weight of the assessed organism, TW is the body weight for the test organism. In the case of assessing a small mammal, 35 g is a suitable value for AW. The test organism is a laboratory rat which had an LD_{50} = 1453 mg ai/kg-bwt and weighs about 350 g; therefore, the adjusted LD_{50} for a 35 g mammal is 2584 mg ai/kg-bwt.

Acute and chronic RQs for birds are summarized in Tables 14-15; acute and chronic RQs for mammals are summarized in Table 16-18. There were no acute LOC exceedances for birds or mammals. The Chronic LOCs were exceeded for both birds and mammals for proposed crops. Avian dietary-based chronic LOCs were exceeded for all food groups except fruits, pods, seeds, and large insects for all the proposed crops (RQs = 1.36 – 3.96). Mammalian dose-based chronic LOCs were exceeded for all food groups except seeds for all the proposed crops (RQs = 1.02 – 35.60). Mammalian dietary-based chronic LOCs were exceeded for all food groups except fruits, pods, seeds, and large

insects for all the proposed crops (RQs = 1.19 – 4.10).

Table 14. Avian dose-based acute RQ values for proposed uses of difenoconazole based on a bobwhite quail LD50 > 2150 mg/kg-bw and upper-bound Kenaga residues.

Use	Application Rate lbs. a.i./A (# app / interval, days)	Body Weight, g	Avian Acute Risk Quotients (based on upper-bound Kenaga residues)			
			Short Grass	Tall Grass	Broadleaf Plants/Small Insects	Fruits/Pods/Seed Large Insects
Ornamentals	0.13 (4, 7)	20	<0.10	<0.05	<0.06	<0.01
		100	<0.05	<0.02	<0.03	<0.01
		1000	<0.01	<0.01	<0.01	<0.01
Tuberous and Corm Veg./ Sugar beets/ Fruiting Veg	0.11 (4, 7)	20	<0.09	<0.04	<0.05	<0.01
		100	<0.04	<0.02	<0.02	<0.01
		1000	<0.01	<0.01	<0.01	<0.01
Pome Fruit	0.07 (5, 7)	20	<0.07	<0.03	<0.04	<0.01
		100	<0.03	<0.01	<0.02	<0.01
		1000	<0.01	<0.01	<0.01	<0.01

* Exceeds Acute Endangered LOC (≥0.1)
** Exceeds Acute Restricted Use LOC (≥0.2)
*** Exceeds Acute Risk LOC (≥0.5)

Table 15. Avian dietary-based acute and chronic RQ values for proposed uses of difenoconazole based on LC50 = 4579 mg a.i./kg diet and NOAEC = 21.9 mg a.i./kg- diet and upper-bound Kenaga residues.

Use/App. Method	Corrected Application Rate lbs. ai/A (# app / interval, days)	Food Items	Acute Dietary RQ (EEC/ LC_{50})	Chronic RQ (EEC/ NOAEC)
Ornamentals	0.13 (4, 7)	Short grass	0.02	**4.68+**
		Tall grass	0.01	**2.15+**
		Broadleaf plants/small insects	0.01	**2.64+**
		Fruits, pods, seeds, and large insects	<0.01	0.29
Tuberous and Corm Veg./ Sugar beets/ Fruiting Veg	0.11 (4, 7)	Short grass	0.02	**3.96+**
		Tall grass	0.01	**1.82+**
		Broadleaf plants/small insects	0.01	**2.23+**
		Fruits, pods, seeds, and large insects	<0.01	0.25
Pome Fruit	0.07 (5, 7)	Short grass	0.01	**2.96+**
		Tall grass	0.01	**1.36+**
		Broadleaf plants/small insects	0.01	**1.67+**
		Fruits, pods, seeds, and large insects	<0.01	0.19

* Exceeds Acute Endangered LOC (≥0.1)
** Exceeds Acute Restricted Use LOC (≥0.2)
*** Exceeds Acute Risk LOC (≥0.5)
+ Exceeds Chronic Risk LOC (≥1.0)

Table 16.Mammalian dose-based acute RQ values for Difenoconazole based on a rat LD_{50} = 1453 mg/kg-bw and upper-bound Kenaga values.							
Use/App. Method	**Application Rate lbs. a.i./A (# app / interval, days)**	**Body Weight (g)**	**Mammalian Acute Risk Quotients** (upper-bound Kenaga residues)				
			Short Grass	**Tall Grass**	**Broadleaf Plants/Small Insects**	**Fruits/pods/ large insects**	**Seeds**
Orn-amentals	0.13 (4, 7)	15	0.03	0.01	0.02	<0.01	<0.01
		35	0.03	0.01	0.01	<0.01	<0.01
		1000	0.01	0.01	0.01	<0.01	<0.01
Tuberous and Corm Veg./ Sugar beets/ Fruiting Veg	0.11 (4, 7)	15	0.03	0.01	0.01	<0.01	<0.01
		35	0.02	0.01	0.01	<0.01	<0.01
		1000	0.01	0.01	0.01	<0.01	<0.01
Pome Fruit	0.07 (5, 7)	15	0.02	0.01	0.01	<0.01	<0.01
		35	0.02	0.01	0.01	<0.01	<0.01
		1000	0.01	<0.01	<0.01	<0.01	<0.01

* Exceeds Acute Endangered LOC (≥0.1)
** Exceeds Acute Restricted Use LOC (≥0.2)
*** Exceeds Acute Risk LOC (≥0.5)

Table 17. Mammalian dose-based chronic RQ values for proposed uses of difenoconazole based on a rat calculated NOAEL = 25 mg/kg-bw and upper-bound Kenaga values.							
Use/App. Method	**Appl. Rate lbs. a.i./A (# app / interval, days)**	**Body Wgt (g)**	**Mammalian Chronic Risk Quotients (upper-bound Kenaga residues)**				
			Short Grass	**Tall Grass**	**Broadleaf Plants/Small Insects**	**Fruits/pods/ large insects**	**Seeds**
Orn-amentals	0.13 (4, 7)	15	**35.60+**	**16.32+**	**20.03+**	**2.23+**	0.49
		35	**30.41+**	**13.94+**	**17.11+**	**1.90+**	0.42
		1000	**16.30+**	**7.47+**	**9.17+**	**1.02+**	0.23
Tuberous and Corm Veg./ Sugar beets/ Fruiting Veg	0.11 (4, 7)	15	**30.13+**	**13.81+**	**16.95+**	**1.88+**	0.42
		35	**25.73+**	**11.79+**	**14.47+**	**1.61+**	0.36
		1000	**13.79+**	**6.32+**	**7.76+**	0.86	0.19
Pome Fruit	0.07 (5, 7)	15	**22.52+**	**10.32+**	**12.67+**	**1.41+**	0.31
		35	**19.24+**	**8.82+**	**10.82+**	**1.20+**	0.27
		1000	**10.31+**	**4.73+**	**5.80+**	0.64	0.14

+ Exceeds Chronic Risk LOC (≥1.0)

Table 18. Mammalian dietary-based chronic RQ values for proposed uses of difenoconazole based on rat NOAEC = 25 mg/kg-diet and upper-bound Kenaga residues.			
Use/App. Method	**Application Rate lbs. ai/A (# app / interval, days)**	**Food Items**	**Chronic RQ (EEC/ NOAEC)**
Orn-amentals	0.13 (4, 7)	Short grass	**4.10+**
		Tall grass	**1.88+**
		Broadleaf plants/small insects	**2.31+**
		Fruits, pods, seeds, and large insects	0.26
Tuberous and Corm Veg./ Sugar beets/ Fruiting Veg	0.11 (4, 7)	Short grass	**3.47+**
		Tall grass	**1.59+**
		Broadleaf plants/small insects	**1.95+**
		Fruits, pods, seeds, and large insects	0.22
Pome Fruit	0.07 (5, 7)	Short grass	**2.60+**
		Tall grass	**1.19+**
		Broadleaf plants/small insects	**1.46+**
		Fruits, pods, seeds, and large insects	0.16

+ Exceeds Chronic Risk LOC (≥1.0)

3. Non-target Terrestrial, Semi-aquatic, and Aquatic Plants

A non-GLP study was carried out as a part of routine discovery screening and efficacy test, to investigate the potential for adverse effects of difenoconazole on terrestrial non-target higher plants. Tests were carried out on seedling emergence and vegetative vigor of two monocot and four dicot plant species. The test included observations of visible effects on seedling emergence and vegetative vigor. No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A). Because there were a limited number of species tested and growth and other required endpoints were not included in this study, the results cannot be used quantitatively in this risk assessment. The maximum application rates for ornamental, vegetables uses, and pome fruit is 0.56, 0.44, and 0.35 lb a.i./A per season. Therefore, at the proposed application rates, adverse affects to non-target terrestrial plants are not expected based on the visually phytotoxicity testing completed; however, definitive RQs cannot be calculated.

4. Nontarget Insects

EFED currently does not quantify risks to terrestrial non-target insects. Risk quotients are therefore not calculated for these organisms. Difenoconazole was classified as practically non-toxic based on the acute contact honey bee study (LD_{50}>100 µg/bee); therefore, the potential for difenoconazole to have adverse effects on pollinators and other beneficial insects is low.

Acute contact testing of difenoconazole on earthworms resulted in a LC_{50} greater than 610 mg ai/kg dw of substrate, as survival was >95% in all treatment groups. No significant differences were detected in any treatment groups relative to the negative control for survival or weight change. The NOAEC and LOAEC based on survival and weight change, were 610 and >610 mg ai/kg dw of substrate. The crop with the highest proposed annual application rate is ornamentals which is 0.56 lbs a.i./acre/season. The proposed application rate was converted to terms of the residue concentration in mg a.i./kg dry soil in 6 inches of dry soil in one acre to compare the residue concentration to the NOAEC. Soil sampling and analysis generally assumes 2,000,000 lbs/acre of soil from 0–6 inches in depth. This weight per unit volume (bulk density) assumes a medium soil texture with some compaction typically found following cropping and harvest. The estimated residue of 0.280 mg a.i./kg dry soil is over three orders of magnitude less than the NOAEC of 610 mg a.i./kg based on the 14-day study; therefore, the risk of harmful effects to earthworms from difenoconazole application to ornamentals, vegetables, and pome fruit is low.

Calculation Steps (Brady 1974)

1. **0.56 lbs a.i./acre** * 454,000 mg/lbs = 254,240 mg a.i/acre
2. 2,000,000 lbs/6 inches of soil in one acre *
   454 g/lbs = 9.08×10^8 g /6 inches of soil *
   1 kg/1000g = 9.08×10^5 kg dry soil

3. 254,240 mg a.i/acre * 1 acre/9.08×10^5 kg = **0.280 mg a.i./kg dry soil**

B. Risk Description - Interpretation of Direct Effects

1. Risks to Aquatic Organisms and Plants

Difenoconazole is a fungicide proposed to treat ornamentals, vegetables, and pome fruit. Following treatment, field runoff many contaminate adjacent ponds, streams, and lakes. Difenoconazole is persistent in the soil environment with biodegradation and hydrolysis occurring slowly. As the rate of soil photolysis is not known, it was assumed to be stable. It is slightly mobile (Koc's ranged from 3471 to 7734) in the soil. Volatilization from soil and water surfaces is not expected to be an important process since difenoconazole has a relatively low vapor pressure (3.32e-5 mm Hg). The overall stability of the compound suggests that difenoconazole will tend to accumulate in the soil with successive application (i.e., planting of treated seed) year to year.

Difenoconazole has potential to reach surface water via run-off and spray drift, and is less likely to reach ground water.

Freshwater fish and invertebrates are not at an acute risk from exposure to difenoconazole (risk quotients were an order of magnitude less than the levels of concern) at the proposed application rates. Similar conclusions were reached for estuarine/marine fish and mollusks. There were no LOCs exceeded for aquatic plants, therefore, risk to aquatic plants are not expected.

Chronic LOCs are exceeded for freshwater and estuarine/marine fish only for the Maine potato scenario. It should be noted that chronic risk to marine fish is based on an extrapolation using the acute-to-chronic ratios in freshwater species and the acute toxicity values for estuarine/marine species. Chronic LOCs are exceeded for freshwater invertebrates for North Carolina apple, Maine potato, North Carolina sweet potato, and the New Jersey ornamental scenarios. Acute Endangered LOCs are exceeded for estuarine/marine crustacean (mysid) for the Maine potato, North Carolina sweet potato, and the New Jersey ornamental scenarios.

Chronic LOCs are also exceeded for estuarine/marine crustaceans for all of the proposed scenarios with RQs almost two orders of magnitude greater than the LOC (1.0). The RQs are based on the mysid life cycle toxicity test which resulted in a reproduction nondefinitive NOAEC <0.115 µg ai/L based on number offspring/female/ reproduction day. There were significant adverse effects on reproductive success at all treatment levels compared to the negative control (42-68%). The NOAEC value for growth based on male dry weight was 0.311 µg ai/L. When RQs are calculated based on the NOAEC for growth, LOCs are also exceeded for all proposed crops. Therefore, there is a potential direct risk for estuarine/marine crustaceans exposed to difenoconazole residues in the proposed use areas of fruiting vegetables, pome fruit, vegetables subgroup (tuberous and corm), sugar beets, and ornamentals that are coastal.

This risk assessment does not estimate risk for sediment dwelling organisms because a toxicity study was not provided. Pore water concentrations were determined using PRZM-EXAMS for two of the proposed uses, which indicated that the concentrations of difenoconazole in the sediment are similar to that in the water column. The use scenario with the highest EECs, Maine potatoes, resulted in peak water column and pore water concentrations for aerial application of 12.4 and 10 µg a.i./L, respectively. Pore water concentrations were also determined for the Pennsylvania apple scenario and resulted in peak water column and pore water concentrations for aerial application of 6.9 and 5 µg a.i./L, respectively. The risk to sediment dwelling organisms is unknown.

2. Risks to Terrestrial Organisms and Plants

The results of the terrestrial risk characterization suggest that there are no acute risks associated with avian and mammalian exposures to difenoconazole. However, there are chronic risk concerns based on the submitted bird and mammal data. Risk quotients were not calculated for terrestrial plants and insects, however it was determined that the potential for difenoconazole to

have adverse effects on these species is low. The risks associated with terrestrial organisms are discussed in greater detail below.

Birds

The acute oral LD_{50} in the mallard duck exceeded the highest dose tested (>2150 mg ai/kg-bw). There was no mortality during the study. All avian acute RQs are less than LOCs, with acute values ranging from <0.01 to <0.10. Avian Chronic RQs exceed LOCs with values ranging from1.36 to 4.68 for all food groups except fruits, pods, seeds, and large insects. Based on this analysis, listed and non-listed birds that feed on grasses and broadleaf plants may be at risk of experiencing chronic and reproductive effects if exposed to difenoconazole.

The chronic toxicity study showed that extended exposure to difenoconozole led to adverse effects on bird reproduction. The predicted EECs of 6.41 to 102.59 mg ai/kg-diet are comparable to the effect levels observed in the bobwhite quail study (MRID 469502-02). The RQs calculated in this assessment are based on the significant reduction in hatchling weight at the 108 mg ai/kg diet (6%) and 539 mg ai/kg diet (10%) treatment levels resulting in a NOAEC of 21.9 mg ai/kg diet for growth. Additionally, female weight gain was adversely affected the highest treatment level (539 mg ai/kg). Numerous reproductive parameters were significantly reduced at the 539 mg ai/kg treatment level, resulting in a reproductive NOAEC of 108 mg ai/kg diet. The reproductive effects included a reduction in the number of eggs laid, eggs set, viable embryos, live embryos, number hatched, hatchling survival, survivor weights. When RQs are estimated based the reproduction NOAEC, chronic LOCs are not exceeded for the proposed crops.

Mammals

As shown in Table 16, all mammalian acute RQs are less than LOCs, with acute values ranging from <0.01 to 0.03. Mammalian Chronic dietary-based and dose-based RQs exceed LOCs for all sized mammals and all food groups (except seeds) with values ranging from 1.02 to 35.60.

EFED based chronic RQs in mammals on the NOAEC for difenoconoazole in a 2-generation rat reproduction study (MRID 422451-18). The predicted EECs of 6.41 to 102.59 mg ai/kg-diet are comparable to the observed effect level seen in the laboratory rat study. The risk quotient is based on weight reduction in pups (NOAEC = 25 mg/kg-diet or NOAEL = 1.25 mg/kg-bw/day). At the 250 mg ai/kg diet treatment level, a dose-related, but not statistically significant, decrease in F_0 female body weights was observed. Also at 250 mg ai/kg diet, there was a statistically significant reduction in body weights of F_1 males. At 2500 mg ai/kg diet, there was a significant reduction in male pup survival. For this endpoint (male pup survival) the NOAEC would be 250 mg ai/kg diet. This latter endpoint is consistent with the NOAEL observed for developmental effects (increases in post-implantation loss and resorptions) in rabbits (NOAEL = 25 mg/kg-bw/day, MRID 42090017) and the NOAEL for developmental toxicity based on increased skeletal abnormalities in rats (100 mg/kg-bw/day, MRID 42090016). When RQs are calculated using that NOAEC based on male pup survival (250 mg ai/kg diet) chronic dietary-

based LOCs are no longer exceeded but chronic dose-based LOCs are still exceeded (RQs = 1.39 – 3.56).

Using this higher NOAEC for more frank adverse effects would result in lower RQs. However, weight reduction in pups is still a potentially important endpoint of concern, as reduced weight gain may cause reduced fitness, which may in turn impact survival and other fitness parameters (reproduction success, ability to environmental incidents such as drought, heat, cold, or flooding, etc.).

With both dose-and dietary RQs exceeding LOCs, listed and non-listed mammals that feed on grasses, broadleaf plants, fruits, pods, and large insects are at risk of experiencing chronic and reproductive effects if exposed to difenoconazole. Granivores are not expected to be at potential risk.

Terrestrial Plants

A visible phytotoxicity (including emergence and mortality) test was carried out on seedling emergence and vegetative vigor of terrestrial plant species. No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A). At the proposed application rates, adverse affects to non-target terrestrial plants are not expected based on the visually phytotoxicity testing completed; however, definitive RQs cannot be calculated.

Non-Target Insects

EFED currently does not quantify risks to terrestrial non-target insects. Risk quotients are therefore not calculated for these organisms. Difenoconazole was classified as practically non-toxic based on the acute contact honey bee study (LD_{50}>100 µg/bee); therefore, the potential for difenoconazole to have adverse effects on pollinators and other beneficial insects is low.

Acute contact testing of difenoconazole on earthworms resulted in a LC_{50} greater than 610 mg ai/kg dw of substrate (NOAEC = 610 mg ai/kg dw), as survival was >95% in all treatment groups. No significant differences were detected in any treatment groups relative to the negative control for survival or weight change. The proposed application rate for ornamentals was converted to terms of the residue concentration in mg a.i./kg dry soil in 6 inches of dry soil in one acre to compare the residue concentration to the NOAEC. The estimated residue of 0.280 mg a.i./kg dry soil is over three orders of magnitude less than the NOAEC of 610 mg a.i./kg based on the 14-day study; therefore, the risk of harmful effects to earthworms from difenoconazole application to ornamentals, vegetables, and pome fruit is low.

3. Potential for Wildlife Exposure Opportunities in Space and Time

In order for chemical residues in potential wildlife food items to result in direct adverse effects in a population of birds or mammals, the organisms must be exposed to those food items at locations and at times when the residues are present. There are a number of important questions that must be considered:

(1) Are the residues present at locations where wildlife might feed?
(2) Are the residues present in food items at times when wildlife might use the areas?
(3) Are the residues likely to be around long enough to result in exposure sufficient to trigger the expected adverse responses?

Fruiting and tuberous vegetable and sugarbeet fields, pome fruit orchards, and ornamental growing locations are a habitat and food source for birds and other wildlife. They are thought to be very important for raptors, such as hawks and owls, because they provide good shelter for small mammals (cottontail rabbit, mice, and voles) around field edges. The same is also true of other predators of rodents such as snakes. Fruits, leaves, and debris from vegetable fields and pome fruit orchards fields are an important resource for wildlife, and in particular a source of food.

For example, sugar beets are a spring sown break crop, and often stubble and remaining beet tops from the previous crop is left in fields over the winter. The stubble and remaining beet tops provide an important resource for wildlife and in particular is a source of food (including insects) for over-wintering birds such as pheasants. Both invertebrate and weed seed availability are likely to be relatively high in sugar beet stubbles. However, much of this stubble is treated with herbicides in the autumn, which limits its usefulness as a source of food for over wintering birds. Once sown, sugarbeet fields are conducive to many ground-nesting birds whose breeding season begins at the same time (Kaffka, 1996). Sugar beet stubbles are often the most preferred habitat to some species. Birds such as the Canadian goose, mourning dove, the ring-tailed pheasant and songbirds are documented as preferentially using sugarbeet fields (Gusey, 1972).

Difenoconazole is recommended as a preventative fungicide, suggesting that the majority of application will occur in spring to early summer when powdery mildew and other disease outbreaks generally occur. The availability of potential wildlife food items in field crops and orchards are an important aspect of evaluating the potential for exposure to pesticides used in the agroenvironments. One possible line of evidence is the potential availability of wildlife food items indicated to be problematic from a residue standpoint. The risk assessment for difenoconazole suggests that based on dose-based studies, there are chronic risks for birds and mammals, including endangered species, consuming food items in or adjacent to fields and orchards including short grass, tall grass, broadleaf plants, and small insects. Food items including short grass, tall grass, and broadleaf plants, and insects are of concern for chronic risks for mammals. USDA crop profiles (http://pestdata.ncsu.edu/cropprofiles/cropprofiles.cfm) were used to determine if any plant species are important weeds of these crops. It is reasonable to expect that important grasses and weeds will frequently occur in and around these crops and perhaps provide

food to wildlife. To test this expectation, USDA crop profiles were compared to lists of important weeds with available listings of important wildlife food plants. The USDA crop profiles present a long diverse list of important weeds associated with field crops and include such important wildlife food items (Martin et al. 1951) as bindweed, pigweed, morning glory, nutsedges (especially in wet areas), dandelions, ironweed, and a many other grasses.

It is likely that birds and small mammals would have the opportunity to use areas in or adjacent to treated fields for food and cover during the potential windows for application. In addition, it is likely that the period for potential application of difenoconazole will overlap active periods in bird and small mammal reproductive cycles. Therefore, in terms of timing of application, potential chronic effects to birds and mammals remain from difenoconazole exposure.

4. Endocrine Disruption Assessment

The potential for endocrine disruptor related effects was observed in mammalian and avian toxicity studies submitted to the Agency. In the 2-generation reproduction study with rats (MRID 420900-18), decreased parental body weight gain and decreased mean pup weight resulted in NOAEC and LOAEC values of 25 and 250 mg ai/kg-diet, respectively. In a mallard duck reproduction study (MRID 422451-06), there were statistically significant reductions in egg shell thickness resulting in NOAEC and LOAEC values of 125 and 625 mg/kg diet, respectively. In the bobwhite quail study (MRID 46950202), there was a significant reduction in hatchling weight at the 108 mg ai/kg diet (6%) and 539 mg ai/kg diet (10%) treatment levels resulting in a NOAEC of 21.9 mg ai/kg diet for growth. Numerous reproductive parameters were significantly reduced at the 539 mg ai/kg treatment level, resulting in a reproductive NOAEC of 108 mg ai/kg diet. The reproductive effects included a reduction in the number of eggs laid, eggs set, viable embryos, live embryos, number hatched, hatchling survival, survivor weights. Additionally, female weight gain was adversely affected the highest treatment level (539 mg ai/kg). These reproductive effects could be an indicator of potential endocrine disruption in birds and mammals.

There are a number of degradates of difenoconazole, which are formed by biotic and abiotic processes. Until such time as the Agency determines that any of these degradates have the potential to be an endocrine disruptor, this risk assessment has not included an evaluation of the relative risk of difenoconazole degradates for endocrine disruption and as such is a source of uncertainty in this assessment.

EPA is required under the Federal Food, Drug, and Cosmetic Act (FFDCA), as amended by the Food Quality Protection Act (FQPA), to develop a screening program to determine whether certain substances (including all pesticide active and other ingredients) "may have an effect in humans that is similar to an effect produced by a naturally occurring estrogen, or other such endocrine effects as the Administrator may designate." Following the recommendations of its Endocrine Disruptor Screening and Testing Advisory Committee (EDSTAC), EPA determined that there were scientific bases for including, as part of the program, the androgen and thyroid hormone systems, in addition to the estrogen hormone system. EPA also adopted EDSTAC's

recommendation that the Program include evaluations of potential effects in wildlife. For pesticide chemicals, EPA will use The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and, to the extent that effects in wildlife may help determine whether a substance may have an effect in humans, FFDCA authority to require the wildlife evaluations. As the science develops and resources allow, screening of additional hormone systems may be added to the Endocrine Disruptor Screening Program (EDSP). When the appropriate screening and/or testing protocols being considered under the Agency's EDSP have been developed, difenoconazole may be subjected to additional screening and/or testing to better characterize effects related to endocrine disruption.

C. Threatened and Endangered Species (Listed Species) Concerns

1. Action Area

For listed species assessment purposes, the action area is considered to be the area affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. At the initial screening-level, the risk assessment considers broadly described taxonomic groups and so conservatively assumes that listed species within those broad groups are collocated with the pesticide treatment area. This means that terrestrial plants and wildlife are assumed to be located on or adjacent to the treated site and aquatic organisms are assumed to be located in a surface water body adjacent to the treated site. The assessment also assumes that the listed species are located within an assumed area, which has the relatively highest potential exposure to the pesticide, and that exposures are likely to decrease with distance from the treatment area. This risk assessment presents the use of difenoconazole on ornamentals, fruiting vegetables, tuberous vegetables, sugar beets, and pome fruit and establishes initial collocation of species with treatment areas.

If the assumptions associated with the screening-level action area result in RQs that are below the listed species LOCs, a "no effect" determination conclusion is made with respect to listed species in that taxa, and no further refinement of the action area is necessary. Furthermore, RQs below the listed species LOCs for a given taxonomic group indicate no concern for indirect effects upon listed species that depend upon the taxonomic group covered by the RQ as a resource. However, in situations where the screening assumptions lead to RQs in excess of the listed species LOCs for a given taxonomic group, a potential for a "may affect" conclusion exists and may be associated with direct effects on listed species belonging to that taxonomic group or may extend to indirect effects upon listed species that depend upon that taxonomic group as a resource. In such cases, additional information on the biology of listed species, the locations of these species, and the locations of use sites could be considered to determine the extent to which screening assumptions regarding an action area apply to a particular listed organism. These subsequent refinement steps could consider how this information would impact the action area for a particular listed organism and may potentially include areas of exposure that are downwind and downstream of the pesticide use site.

2. Taxonomic Groups Potentially at Risk

Based on available screening level information, for the proposed uses of difenoconaozle, acute LOCs are not exceeded for freshwater fish and invertebrates; estuarine/marine fish and mollusks; and aquatic plants. However, chronic LOCs are exceeded for freshwater and estuarine/marine fish but only for the Maine potato scenario. Chronic LOCs are exceeded for freshwater invertebrates for the Maine potato, North Carolina sweet potato, and the New Jersey ornamental scenarios. Acute Endangered LOCs are exceeded for estuarine/marine crustacean (mysid) for the Maine potato, North Carolina sweet potato, and the New Jersey ornamental scenarios. Chronic LOCs are also exceeded for estuarine/marine crustaceans for all of the proposed scenarios with RQs almost two orders of magnitude greater than the LOC (1.0). Threatened and endangered aquatic species may potentially be affected through acute and chronic exposure. Although LOCs based on direct effects were exceeded for only certain crop scenarios for aquatic species, risk to all freshwater and marine fish and invertebrates was assessed based on direct and indirect effects.

There are no acute LOC's exceeded for mammals or birds. The chronic LOC's are exceeded for birds and mammals consuming all food groups, except seeds. Threatened and Endangered birds and mammals may potentially be affected through chronic exposure.

A summary of the potential for direct and indirect effects to listed species, summarized by taxonomic group, is provided in **Table 19**. Based on available screening-level information, the greatest concerns for ecological risks based on exposure to difenoconazole lie with aquatic organisms, birds, mammals, and terrestrial plants. Therefore, these species and the species that they represent as surrogates were identified as being of potential concern for direct and indirect effects.

The LOCATES database (version 2.9.7) was used to identify those U.S. counties that grow ornamentals, the proposed vegetables, and pome fruit and that have federally-listed endangered or threatened species. It should be noted that LOCATES does not include ornamental residential use. In addition, federally-listed reptiles and amphibians (terrestrial phase) were also identified using LOCATES v2.9.7 as birds are used as their surrogate species. The complete list of the number of endangered and threatened species affected is provided in Appendix G. With additional refinement by exploring more detailed species biology (e.g., geographic location, specific feeding habits, time of year likely to utilize crop fields), some species listed above may be determined to be not likely to be affected.

Table 19. Listed Species Risks Associated With Direct or Indirect Effects Due to Applications of Difenoconazole.		
Listed Taxonomy	**Direct Effects**	**Indirect Effects**
Terrestrial and semi-aquatic plants – monocots	Unknown [g]	Yes [f]
Terrestrial and semi-aquatic plants – dicots	Unknown [g]	Yes [f]
Terrestrial invertebrates	No	No
Birds	Chronic	Yes [c, d, e]
Terrestrial phase amphibians	Chronic [b]	Yes [c, d, e]
Reptiles	Chronic [b]	Yes [c, d, e]
Mammals	Chronic	Yes [c, d, e]
Aquatic vascular plants	No	No
Aquatic non-vascular plants [a]	No	No
Freshwater fish	Chronic (ME potato scenario)	Yes [c, d, e]
Aquatic phase amphibians	Chronic [b]	Yes [c, d, e]
Freshwater crustaceans	Chronic	No
Estuarine/marine Mollusks	No	No
Estuarine/marine crustaceans	Acute and Chronic	No
Estuarine/marine fish	Chronic (ME potato scenario)	Yes [e]

[a] At the present time no aquatic non-vascular plants are included in Federal listings of threatened and endangered species. The taxonomic group is included here for the purposes of evaluating potential contributions to indirect effects to other taxonomy and as a record of exceedances should future listings of non-vascular aquatic plants warrant additional evaluation of Federal actions.
[b] Terrestrial phase amphibians and reptiles estimated using birds as surrogates. Aquatic amphibians estimated using freshwater fish as surrogates.
[c] Chronic LOC exceeded for some feeding guilds and size classes of birds.
[d] Chronic LOC exceeded for some feeding guilds and size classes of mammals.
[e] Potential Risk to freshwater and estuarine/marine crustaceans.
[f] Indirect effects may be caused by plants that rely on affected mammals, birds, amphibians, and reptiles as pollinators.
[g] Risk cannot be precluded because the terrestrial plant toxicity test was qualitative.

A preliminary analysis of the co-occurrence of listed species and proposed uses for difenoconazole was conducted using EFED's LOCATES database (**Table 20**). The objective was to provide insight into the potential for exposure of listed species and to identify those areas, crop uses, and listed species that warrant further attention. A tabulation of the number of unique listed species that occur in the same county of difenoconazole use, by crop and by state is provided in Table 20. By this tabulation, the proposed uses with the highest numbers of potentially affected listed species are ornamentals (997 species), followed by fruiting vegetables (980 species), tuberous and corm vegetables (927 species), pome fruit (884 species) and sugar beets (123 species).

Listed plant species account for a large portion of the affected species, total followed by

mammals, fish, birds and the other taxa. Although a lack of a definitive terrestrial plant study precludes a thorough assessment of the risks to terrestrial plants, at the very least, indirect effects on listed plant species are possible via direct effects on avian and mammalian pollinators. There are possible indirect affects to terrestrial plants that are pollinated and/or dispersed by birds and mammals. Reductions in populations in pollinators and dispersers may lead to decreases in certain flowering plant populations. Currently, none of the listed taxa in Table 20 can be discounted since for many, direct effects are expected and, in addition, indirect effects may be important for some species in all taxa given the risks of difenoconazole. In general, for all labeled uses of difenoconazole there is at least one, and usually more, listed species that may potentially occur in or near a use area. A more refined assessment should involve clear delineation of the action area associated with uses of difenoconazole and best available information on the temporal and spatial co-location of listed species with respect to the action area. This analysis has not been conducted for this assessment.

Table 20. Number of Listed species that occur in the same county as proposed difenoconazole uses, listed by crop in LOCATES.

Uses (total # of listed species)		Amp	Bird	Crust.	Fish	Mammal	Marine Mammal	Reptile	Monocot	Dicot
Ornamentals[1] (997pecies)	Counties	105	1741	61	675	1317	79	309	390	751
	States	12	49	12	41	47	7	25	30	44
	Species	18	72	21	129	60	9	29	65	593
Tuberous and Corm Veg[2] (927 species)	Counties	73	1193	43	511	941	48	208	293	548
	States	11	49	12	41	46	16	24	37	43
	Species	16	70	21	124	54	10	28	60	543
Fruiting Veg[3] (980 species)	Counties	105	1679	61	654	1251	70	304	390	743
	States	11	49	13	40	47	7	25	38	44
	Species	17	72	22	128	54	9	29	62	586
Sugar beets (123 species)	Counties	11	126	10	36	71	1	14	32	34
	States	1	14	1	9	10	1	3	6	9
	Species	4	15	4	27	16	1	6	8	41
Pome Fruit[4] (884 species)	Counties	96	1620	61	626	1282	38	219	384	726
	States	11	49	11	39	47	7	24	40	44
	Species	17	61	20	134	52	9	28	52	440

[1] Include NASS data for floriculture crops- bedding/garden plants, cut flowers and cut florist greens, foliage plants, and potted flowering plants, (total), nursery stock, and other nursery and greenhouse crops in LOCATES;
[2] Includes NASS data for artichokes, ginger root, potatoes, sweet potatoes in LOCATES;
[3] Includes NASS data for eggplant, okra, bell pepper, chile peppers, pimientos, and tomatoes in LOCATES;
[4] Includes NASS data for apples and pears in LOCATES.

3. Use of Probit Slope Response Relationship to Provide Information on the Endangered Species Levels of Concern

The Agency uses the probit dose response relationship as a tool for providing additional information on the listed animal species acute levels of concern. The acute listed species LOCs of 0.1 and 0.05 are used for terrestrial and aquatic animals, respectively. As part of the risk characterization, an interpretation of acute LOCs for listed species is discussed. This interpretation is presented in terms of the chance of an individual event (i.e., mortality or

immobilization) should exposure at the estimated environmental concentration actually occur for a species with sensitivity to difenoconazole on par with the acute toxicity endpoint selected for RQ calculation. To accomplish this interpretation, the Agency uses the slope of the dose response relationship available from the toxicity study used to establish the acute toxicity measurement endpoints for each taxonomic group. The individual effects probability associated with the LOCs is based on the mean estimate of the slope and an assumption of a probit dose response relationship. In addition to a single effects probability estimate based on the mean, upper and lower estimates of the effects probability are also provided to account for variance in the slope. The upper and lower bounds of the effects probability are based on available information on the 95% confidence interval of the slope. A statement regarding the confidence in the applicability of the assumed probit dose response relationship for predicting individual event probabilities is also included. Studies with good probit fit characteristics (i.e., statistically appropriate for the data set) are associated with a high degree of confidence. Conversely, a low degree of confidence is associated with data from studies that do not statistically support a probit dose response relationship. In addition, confidence in the data set may be reduced by high variance in the slope (i.e., large 95% confidence intervals), despite good probit fit characteristics.

Individual effect probabilities are calculated based on an Excel spreadsheet tool IECV1.1 (Individual Effect Chance Model Version 1.1) developed by Ed Odenkirchen of the U.S. EPA, OPP, Environmental Fate and Effects Division (June 22, 2004). The model allows for such calculations by entering the mean slope estimate (and the 95% confidence bounds of that estimate) as the slope parameter for the spreadsheet. In addition, the LOC (0.1 for terrestrial animals and 0.05 for aquatic animals) is entered as the desired threshold.

Freshwater fish

Due to lack of partial mortalities (only one partial mortality observed) derived from the concentration range tested in the submitted study, the probit statistical model could not be used, and therefore the slope of the mortality curve could not be determined. Instead, the binomial statistical model was used to determine the LC_{50} values. Therefore, event probability was calculated for the exceeded LOC based on a default probit slope assumption of 4.5 with confidence intervals of 2 and 9 as per original Agency assumptions of typical slope cited in Urban and Cook (1986). The corresponding estimated chance of individual mortality associated with the listed species LOC of 0.05 the acute toxic endpoint for freshwater fish is 1 in 418,000,000. It is recognized that extrapolation of very low probability events is associated with considerable uncertainty in the resulting estimates. To explore possible bounds to such estimates, the default upper and lower values for the default slope estimate were used to calculate upper and lower estimates of the effects probability associated with the listed species LOC. These values are 1 in 216 and 1 in 1.75E+31. Although the Agency has assumed a probit dose response relationship in establishing the listed species LOCs, the available data for the toxicity study generating RQs for this taxonomic group do not statistically support a probit dose response relationship and so the confidence in estimated event probabilities based on this dose response relationship and the listed species LOC is low.

Freshwater invertebrates

Based on an assumption of a probit dose response relationship with a mean estimated slope of 4.1, the corresponding estimated chance of individual mortality associated with the listed species LOC of 0.05 the acute toxic endpoint for freshwater invertebrates is 1 in 20,800,000. It is recognized that extrapolation of very low probability events is associated with considerable uncertainty in the resulting estimates. To explore possible bounds to such estimates, the upper and lower values for the mean slope estimate (2.5, 5.7) were used to calculate upper and lower estimates of the effects probability associated with the listed species LOC. These values are 1 in 1750 and 1 in 1.66E+13.

Estuarine/Marine Fish

Due to mortality pattern that provided an unrealistic LC_{50} estimate from a probit model, the probit statistical model was not used, and therefore the slope of the mortality curve could not be determined. Instead, the binomial statistical model was used to determine the LC_{50} values. Therefore, event probability was calculated for the exceeded LOC based on a default probit slope assumption of 4.5 with confidence intervals of 2 and 9 as per original Agency assumptions of typical slope cited in Urban and Cook (1986). The corresponding estimated chance of individual mortality associated with the listed species LOC of 0.05 the acute toxic endpoint for estuarine/marine fish is 1 in 418,000,000. It is recognized that extrapolation of very low probability events is associated with considerable uncertainty in the resulting estimates. To explore possible bounds to such estimates, the default upper and lower values for the default slope estimate were used to calculate upper and lower estimates of the effects probability associated with the listed species LOC. These values are 1 in 216 and 1 in 1.75E+31. Although the Agency has assumed a probit dose response relationship in establishing the listed species LOCs, the available data for the toxicity study generating RQs for this taxonomic group do not support a probit dose response relationship and so the confidence in estimated event probabilities based on this dose response relationship and the listed species LOC is low.

Estuarine/marine invertebrates

Based on an assumption of a probit dose response relationship with a mean estimated slope of 4.7, the corresponding estimated chance of individual mortality associated with the listed species LOC of 0.05 the acute toxic endpoint for estuarine/marine invertebrates is 1 in 2,070,000,000. It is recognized that extrapolation of very low probability events is associated with considerable uncertainty in the resulting estimates. To explore possible bounds to such estimates, the upper and lower values for the mean slope estimate (2.7, 6.8) were used to calculate upper and lower estimates of the effects probability associated with the listed species LOC. These values are 1 in 4510 and 1 in 2.22E+18.

Avian - single oral dose

As no mortality was observed at any dosage in the mallard duck single oral dose study

(highest dosage was 2150 mg ai/kg-bwt), no definitive estimate of an LD_{50} or slope was available. As such, no probit slope analysis was performed.

Avian - dietary

Due to lack of partial mortalities (only one partial mortality observed) derived from the concentration range tested in the submitted study, the probit statistical model could not be used, and therefore the slope of the mortality curve could not be determined. Instead, the binomial statistical model was used to determine the LC_{50} values. Therefore, event probability was calculated for the exceeded LOC based on a default probit slope assumption of 4.5 with confidence intervals of 2 and 9 as per original Agency assumptions of typical slope cited in Urban and Cook (1986). The corresponding estimated chance of individual mortality associated with the listed species LOC of 0.10 the acute toxic endpoint for birds is 1 in 294,000. It is recognized that extrapolation of very low probability events is associated with considerable uncertainty in the resulting estimates. To explore possible bounds to such estimates, the default upper and lower values for the default slope estimate were used to calculate upper and lower estimates of the effects probability associated with the listed species LOC. These values are 1 in 44 and 1 in 8.86E+18. Although the Agency has assumed a probit dose response relationship in establishing the listed species LOCs, the available data for the toxicity study generating RQs for this taxonomic group do not statistically support a probit dose response relationship and so the confidence in estimated event probabilities based on this dose response relationship and the listed species LOC is low.

Mammal - acute oral

Based on an assumption of a probit dose response relationship with an estimated slope of 3.22, the corresponding estimated chance of individual mortality associated with the listed species LOC of 0.10 the acute toxic endpoint for mammals is 1 in 1,530. It is recognized that extrapolation of very low probability events is associated with considerable uncertainty in the resulting estimates. To explore possible bounds to such estimates, the upper and lower values for the slope estimate (-36, 42) are typically used to calculate the upper and lower estimates of the effects probability associated with the listed species LOC. Although the Agency has assumed a probit dose response relationship in establishing the listed species LOCs, the available data for the toxicity study generating RQs for this taxonomic group do not statistically support a probit dose response relationship ($p=0.02$) and so the confidence in estimated event probabilities based on this dose response relationship and the listed species LOC is low. Because of the poor fit to the probit curve, the wide confidence intervals for the slope and the negative lower bound of the slope, the upper and lower estimates of the effects probabilities were not calculated.

4. Indirect Effect Analyses

The Agency acknowledges that pesticides have the potential to exert indirect effects upon the listed organisms by, for example, perturbing forage or prey availability, altering the extent of nesting habitat, etc. In conducting a screen for indirect effects, direct effect LOCs for each taxonomic group are used to make inferences concerning the potential for indirect effects upon

listed species that rely upon non-endangered organisms in these taxonomic groups as resources critical to their life cycle.

Based on the chronic risks for birds and mammals on a dietary basis, there may be potential indirect effects to species of birds and mammals that depend on terrestrial organisms as a source of food. The chronic effects observed in the toxicity studies involved reductions in reproductive abilities for both taxa. Of particular concern would be the terrestrial wildlife populations that feed in or near ornamental, fruiting vegetables, sugar beets, tuberous vegetables, and pome fruit fields and those that rely on mammals or birds as a primary food source. In Section IV.B.3 of this document, it was shown that there is a potential for wildlife exposure to difenoconazole residues in time and space. Non-listed and listed animals such as raptors (hawks and owls), coyotes, and foxes that feed on small mammals (cottontail rabbit, mice, voles, and other rodents) may be indirectly affected by chronic levels of difenoconazole found in their food source. Predators that feed on birds, including waterfowl, may also be affected by food chain transfer. Although difenoconazole does rapidly bioaccumulate, depuration is also rapid (MRID 422451-42), thereby reducing food chain effects of the residues. Other indirect effects, such as reduced prey availability, may occur if reductions in populations of small mammals or bird populations occur due to chronic residue exposure.

In addition, screening-level chronic LOCs are exceeded for freshwater and estuarine/marine fish and freshwater invertebrates for certain crop scenarios. Acute Endangered LOCs are exceeded for estuarine/marine crustacean (mysid) for certain scenarios. Chronic LOCs are also exceeded for estuarine/marine crustaceans for all of the proposed scenarios. There may be potential indirect effects to listed and nonlisted terrestrial and aquatic species that depend on aquatic organisms as a source of food.

There also possible indirect affects to terrestrial plants that are pollinated and/or dispersed by birds and mammals. Reductions in populations in pollinators and dispersers may lead to decreases in certain flowering plant populations. A further evaluation of the listed plant species their relationship to birds to mammals along with the geographical and temporal nature of the exposure must be considered to determine if a rationale for a "not likely to adversely effect" determination for plants is possible.

Based on the screening level analysis, there may be a potential concern for indirect effects. As such, the nature of the chronic toxicological endpoint, Services-provided "species profiles", and further evaluation of the geographical and temporal nature of the exposure are considered to determine if a rationale for a "not likely to adversely effect" determination is possible.

5. Critical Habitat

In the evaluation of pesticide effects on designated critical habitat, consideration is given to the physical and biological features (primary constituent elements) of a critical habitat identified by the U.S Fish and Wildlife and National Marine Fisheries Services as essential to the conservation of a listed species and which may require special management considerations or

protection. The evaluation of impacts for a screening level pesticide risk assessment focuses on the biological features that are primary constituent elements and is accomplished using the screening-level taxonomic analysis (RQs) and listed species' levels of concern (LOCs) that are used to evaluate direct and indirect effects to listed organisms.

The screening-level risk assessment for difenoconazole has identified potential concerns for direct and indirect effects on listed species for those organisms dependant upon small mammals, birds, estuarine/marine invertebrates, and terrestrial plants. In light of the potential for indirect effects, the next step for EPA and the Service(s) is to identify which listed species and critical habitat are potentially implicated.

Analytically, the identification of such species and critical habitat can occur in either of two ways. First, the agencies could determine whether the action area overlaps critical habitat or the occupied range of any listed species. If so, EPA would examine whether the pesticide's potential impacts on non-endangered species would affect the listed species indirectly or directly affect a primary constituent element of the critical habitat. Alternatively, the agencies could determine which listed species depend on biological resources, or have constituent elements that fall into the taxa that may be directly or indirectly impacted by a pesticide. Then EPA would determine whether or not use of the pesticide overlaps the critical habitat or the occupied range of those listed species. At present, the information reviewed by EPA is not sufficient to permit use of either analytical approach to make a definitive identification of species that are potentially impacted indirectly or critical habitats that are potentially impacted directly by the use of pesticides. EPA and the Service(s) are working together to conduct the necessary analysis.

This screening-level risk assessment for critical habitat provides a listing of potential biological features that, if they are primary constituent elements of one or more critical habitats, would be of potential concern. These correspond to the taxa identified above as being of potential concern for indirect effects and include birds, reptiles, terrestrial phase amphibians, mammals, terrestrial plants and aquatic organisms. This list should serve as an initial step in problem formulation for further assessment of critical habitat impacts outlined above, should additional work be necessary.

D. Description of Assumptions, Uncertainties, Strengths, and Limitations

1. Assumptions and Limitations Related to Exposure for all Taxa

There are a number of areas of uncertainty in the aquatic and terrestrial risk assessments. The toxicity assessment for terrestrial and aquatic animals is limited by the number of species tested in the available toxicity studies. Use of toxicity data on representative species does not provide information on the potential variability in susceptibility to acute and chronic exposures.

This screening-level risk assessment relies on labeled statements of the maximum rate of difenoconazole application, the maximum number of applications, and the shortest interval between applications. Together, these assumptions constitute a maximum use scenario. The frequency at which actual uses approach these maximums is dependant on resistance to the fungicide, timing of applications, and market forces.

2. Assumptions and Limitations Related to Exposure for Aquatic Species

The fate and transport data base for difenoconazole was sufficient to conduct aquatic modeling for exposure assessment of aquatic species. No data gaps were identified. The following uncertainties have been identified in the environmental fate properties and exposure models for difenoconazole:

1) For an acute risk assessment, there is no averaging time for exposure. An instantaneous peak concentration, with a 1 in 10 year return frequency, is assumed. The use of the instantaneous peak assumes that instantaneous exposure is of sufficient duration to elicit acute effects comparable to those observed over more protracted exposure periods tested in the laboratory, typically 48 to 96 hours. In the absence of data regarding time-to-toxic event analyses and latent responses to instantaneous exposure, the degree to which risk is overestimated cannot be quantified. However, the peak values and the 4-day values are very similar as estimated by the PRZM EXAMS model. It should be noted that these peak values resulted in acute LOC (0.05) exceedances for estuarine/marine mysids for the Maine potatoes, North Carolina sweet potatoes, and New Jersey Ornamentals that were close to the LOC (0.05-0.08). When the toxicity values are compared to the 4-day EECs there are still exceedances for these scenarios.

2) There is an uncertainty associated with the selection of the aqueous photolysis input parameter. A half-life of 228 days was used as an input parameter for aqueous photodegradation. This is the longest available half-life for difenoconazole. It was recalculated from the artificial light half-life to the natural sunlight conditions measured on Jul 27, 2001, in Itingen, Switzerland, and not the US conditions (MRID 46950105). However, the registrant-submitted laboratory studies showed that difenoconazole might potentially degrade more rapidly in natural water-sediment systems where organic matter is present. In addition, another study conducted on a sterile buffer solution showed a shorter half-life of 6 days. The 228-day value is the longest half-life, and is thus a conservative

value and was used in the risk assessment. However, the EECs were similar using both the 228-day and 6-day half lives. For example, using the Maine potato scenario in PRZM EXAMS resulted in peak EECs of 12.436 ppb for the 228-day half life and 11.325 ppb for the 6-day half life.

3) It was noted that in the aerobic soil metabolism, aerobic and anaerobic aquatic metabolism studies, there were discrepancies in the results between laboratory studies conducted on difenoconazole (technical grade) at the higher dose rates vs. lower dose rates. The longer half-lives obtained for the higher concentration rates might suggest that the rate of difenoconazole microbialy mediated degradation may be concentration dependent. For modeling purposes, the input parameters were determined based on the half-lives obtained from tests performed with difenoconazole doses at the levels close to the registrant proposed application rate for this action.

4) It is not certain whether Freundlich adsorption partition coefficient (K_F) is equal to K_D since $^1/n$ ranged from 0.80 to 0.91 (MRID 46950121). For this assessment it was assumed that K_F is equal K_D.

5) For this assessment, four and five consecutive difenoconazole applications were modeled. Based on the proposed label language for vegetables and pome fruit, it is recommended that Inspire be used in the blocking program using the maximum of two consecutive applications before rotating to fungicides with another mode of action registered for those uses. The current version of PRZM-EXAM does not allow modeling alternated applications as recommended by registrant in the proposed label. Therefore, the modeling of vegetables and pome fruits may be conservative with regard to the application regime. For aquatic species, based on two applications, there are no LOCs exceeded for freshwater and marine fish and invertebrates, except for chronic risk to mysid (all modeled scenarios). Based on one application, the chronic LOCs are still exceeded for mysids. For terrestrial species, based on two applications, the chronic LOCs are still exceeded for birds and mammals.

6) The registrant-proposed label for Inspire® did not specify the maximum number of applications for ornamental uses. The maximum number of applications was estimated based on the maximum single application rate, and the maximum seasonal application rate, i.e. four. Four times the proposed maximum single application rate to ornamental, i.e. 0.15 kg ai/ha, equals 0.60 kg ai/ha (= 0.54 lb ai/A), which is slightly less than the proposed registrant allowed maximum application rate per season, i.e. ca 0.63 kg ai/ha (= 0.56 lb ai/A). Therefore, for ornamentals, the EECs may be underestimated. An adjustment of the maximum application rate per season on the final label is recommended. In addition, it is suggested that the registrant supply information pertaining to the application method for ornamental uses.

7) A default value was used for a foliar dissipation parameter because difenoconazole magnitude of the residues studies did not provide reliable, statistically robust data suitable to estimate a valid foliar dissipation half-life. The registrant submitted several magnitudes of the residue studies which included studies on apple and pear fruits, tomato, bell pepper, and residues in sugar beets (MRIDs: 46950233-4 and 46950236). Out of those studies, only studies performed on sugar beets tops were representative of foliage (MRID 46950236). Two estimated half-lives for sugar beet tops appeared to show significant discrepancy; the half-lives were 2.4 and 8 days (MN and CA). For both trials, the registrant submitted only total monthly precipitation data; daily precipitation data were not provided. During the month of last (fourth) difenoconazole application in CA trial (half-life = 8 days), there was no rainfall; irrigation took place on third day after application. During MN trial (half-life = 2.4 days), during the month of fourth application, the monthly rainfall was the highest in the year, being 7.08 in. The significant rainfall could shorten the half-life in MN trial. In conclusion, the limited data are of uncertain quality, therefore for aquatic modeling, EFED's default value for the foliar dissipation half-life was used. However, chronic LOCs are still exceeded for birds and mammals when the 1-day half life scenario is used. Therefore, additional data may not change risk conclusions.

8) This assessment does not address difenoconazole application via chemigation. Chemigation is allowed for use according to the proposed label for all crops except pome fruit. The application rate is the same for chemigation.

3. Assumptions and Limitations Related to Exposure for Terrestrial Species

Variation in habitat and dietary requirements

For screening terrestrial risk assessments, a generic bird or mammal is assumed to occupy either the treated field or adjacent areas receiving pesticide at a rate commensurate with the treatment rate on the field. The habitat and feeding requirements of the modeled species and the wildlife species may be different. It is assumed that species occupy, exclusively and permanently, the treated area being modeled. This assumption leads to a maximum level of exposure in the risk assessment.

The acute dose-based approach assumes that the uptake and absorption kinetics of a gavage toxicity study approximate the absorption associated with uptake from a dietary matrix. Toxic response is a function of duration and intensity of exposure. Absorption kinetics across the gut and enzymatic activation/deactivation of a toxicant may be important and are likely variable across chemicals and species. For many compounds a gavage dose represents a very short-term high intensity exposure, where as dietary exposure may be of a more prolonged nature. The dietary-based approach assumes that animals in the field are consuming food at a rate similar to that of confined laboratory animals. Energy content in food items differs between the field and the laboratory and so do the energy requirements of wild and captive animals.

Variation in diet composition

The risk assessment and calculated RQs assume 100% of the diet is relegated to single food types foraged only from treated fields. The assumption of 100% diet from a single food type may be realistic for acute exposures, but diets are likely to be more variable over longer periods of time. This assumption is likely to be conservative and will tend to overestimate potential risks for chronic exposure, especially for larger organisms that have larger home ranges. These large animals (e.g., deer and geese) will tend to forage from a variety of areas and move on and off of treated fields. Small animals (e.g., mice, voles, and small birds) may have home ranges smaller than the size of a treated field and will have little or no opportunity to obtain foodstuffs that have not been treated with difenoconazole. Even if their home range does cover area outside the treated field, difenoconazole may have runoff to areas adjacent to the treated field. However, given that the chronic risk LOCs are exceeded for all sized birds and mammals for all food types, any mixture of food items would likely result in chronic risk to these species.

Exposure routes other than dietary

Screening-level risk assessments for spray applications of pesticides consider dietary exposure to terrestrial organisms. Other exposure routes are possible for animals residing in or moving through treated areas. These routes include ingestion of contaminated drinking water, ingestion of contaminated soils, preening/grooming, and dermal contact. Preening exposures, involving the oral ingestion of material from the feathers remains an unquantified, but potentially important, exposure route. The screening assessment does not consider dermal exposure. Dermal exposure may occur through three potential sources: (1) direct application of spray to terrestrial wildlife in the treated area or within the drift footprint, (2) incidental contact with contaminated vegetation, or (3) contact with contaminated water or soil. Because of difenoconazole's persistence in soils, this may be an important exposure pathway. Given that difenoconazole is soluble in water there exists the potential to dissolve in runoff and puddles on the treated field may contain the chemical. Available data suggests that up to 15% of the diet can consist of incidentally ingested soil depending on the species and feeding strategy (Beyer et al, 1994). If toxicity is expected through any of these other routes of exposure, then the risks of a toxic response to difenoconazole is underestimated in this risk assessment.

However, based on the submitted acute toxicity avian and mammalian studies, difenoconazole is practically non-toxic to these species on an acute basis. In addition, acute LOCs were not exceeded for dose- and dietary-based exposure. Environmental concentrations in these additional exposure routes are not expected to be appreciably greater than dietary exposure, therefore risk potential is minimal. In addition, because difenoconazole does not volatilize appreciably (v.p. 3.3×10^{-5} mm Hg at 25°C), inhalation does not appear to be a significant contributor to overall exposure.

Dietary Intake - The Differences Between Laboratory and Field Conditions

There are several aspects of the dietary test that introduce uncertainty into calculation of the LC_{50} value (Mineau, Jobin, and Baril, 1994; ECOFRAM, 1999). The endpoint of this test is reported as the concentration mixed with food that produces a response rather than as the dose ingested. Although food consumption sometimes allows for the estimate of a dose, calculations of the mg/kg/day are confounded by undocumented spillage of feed and how consumption is measured over the duration of the test. Usually, if measured at all, food consumption is estimated once at the end of the five-day exposure period. Further, group housing of birds undergoing testing only allows for a measure of the average consumption per day for a group; consumption estimates can be further confounded if birds die within a treatment group. The exponential growth of young birds also complicates the estimate of the dose; controls often nearly double in size over the duration of the test. Since weights are only taken at the initiation of the exposure period and at the end, the dose per body weight (mg/kg) is difficult to estimate with any precision. The interpretation of this test is also confounded because the response of birds is not only a function of the intrinsic toxicity of the pesticide, but also the willingness of the birds to consume treated food.

Further, the acute and chronic characterization of risk rely on comparisons of wildlife dietary residues with LC_{50} or NOAEC values expressed in concentrations of pesticides in laboratory feed. These comparisons assume that ingestion of food items in the field occurs at rates commensurate with those in the laboratory. Although the screening assessment process adjusts dry-weight estimates of food intake to reflect the increased mass in fresh-weight wildlife food intake estimates, it does not allow for gross energy and assimilative efficiency differences between wildlife food items and laboratory feed. On gross energy content alone, direct comparison of a laboratory dietary concentration- based effects threshold to a fresh-weight pesticide residue estimate would result in an underestimation of field exposure by food consumption by a factor of 1.25 - 2.5 for most food items. Only for seeds would the direct comparison of dietary threshold to residue estimate lead to an overestimate of exposure.

Differences in assimilative efficiency between laboratory and wild diets suggest that current screening assessment methods do not account for a potentially important aspect of food requirements. Depending upon species and dietary matrix, bird assimilation of wild diet energy ranges from 23 - 80%, and mammal's assimilation ranges from 41 - 85% (U.S. Environmental Protection Agency, 1993). If it is assumed that laboratory chow is formulated to maximize assimilative efficiency (e.g., a value of 85%), a potential for underestimation of exposure may exist by assuming that consumption of food in the wild is comparable with consumption during laboratory testing. In the screening process, exposure may be underestimated because metabolic rates are not related to food consumption.

Finally, the screening procedure does not account for situations where the feeding rate may be above or below requirements to meet free living metabolic requirements. Gorging behavior is a possibility under some specific wildlife scenarios (e.g., bird migration) where the food intake rate may be greatly increased. Kirkwood (1983) has suggested that an upper-bound limit to this behavior might be the typical intake rate multiplied by a factor of 5. In contrast is the potential for avoidance, operationally defined as animals responding to the presence of noxious chemicals in

their food by reducing consumption of treated dietary elements. This response is seen in nature where herbivores avoid plant secondary compounds.

In the absence of additional information, the acute oral LD_{50} test provides the best estimate of acute effects for chemicals where exposure can be considered to occur over relatively short feeding periods, such as the diurnal feeding peaks common to avian species (ECOFRAM, 1999).

Incidental Pesticide Releases Associated with Use

This risk assessment is based on the assumption that the entire treatment area is subject to difenoconazole application at the rates specified on the label. In reality, there is the potential for uneven application of difenoconazole through such plausible incidents as changes in calibration of application equipment, spillage, and localized releases at specific areas of the treated field that are associated with specifics of the type of application equipment used (e.g., increased application at turnabouts when using older application equipment).

4. Assumptions and Limitations Related to Effects Assessment

Data gaps

A chronic estuarine/marine fish study was not provided for this risk assessment. The toxicity value for this species was estimated based on freshwater acute to chronic ratios. These studies will be requested if additional uses are proposed that have higher application rates.

This risk assessment does not estimate risk for sediment dwelling organisms because a toxicity study was not provided. Because difenoconazole is persistent and has a high Koc, concentrations in sediment are expected to be high. Pore water concentrations were determined using PRZM-EXAMS for two of the proposed uses which indicated that the concentrations of difenoconazole in the sediment are similar to that in the water column. The use scenario with the highest EECs, Maine potatoes, resulted in similar peak water column and pore water concentrations for aerial application of 12.4 and 10 µg a.i./L, respectively. Pore water concentrations were also determined for the Pennsylvania apple scenario and resulted in peak water column and pore water concentrations for aerial application of 6.9 and 5 µg a.i./L, respectively.

A visible phytotoxicity (including evaluations of seedling emergence and vegetative vigor) test was carried out on terrestrial plant species. No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A). Definitive RQs cannot be calculated.

A brief review of terrestrial plant data for other pesticides in this same class (conazole) with similar mode of action does indicate toxicity to terrestrial plants. Propiconizole (PC code 122101) resulted in EC_{25}s ranging from 0.039 to >1.5 lbs ai/acre for the seedling emergence and

the vegetative vigor studies.

Cyproconazole (PC code 128993) Tier I toxicity testing resulted in NOAECs ranging from 0.077 to 0.617 lbs ai/acre for the seedling emergence and the vegetative vigor studies.
For difenoconazole, the highest proposed application is for use on ornamentals at 0.13 lb a.i./A. The number of applications is not specified on the label. At the proposed application rates, adverse affects to non-target terrestrial plants are not expected based on the visually phytotoxicity testing completed. In addition, using the most conservative endpoints from the above conazone studies, the EC_{25} of 0.039 lb a.i./A and NOAEC <0.061 lb a.i./A did not results in LOC exceedances for difenoconazole based on one application to ornamentals. Further analysis on multiple applications must be completed to reduce uncertainty. Based on this weight of evidence, risks to terrestrial plants are unlikely but cannot be precluded.

Tetraconazole (PC code 120603) Tier I toxicity testing seedling emergence (MRID 458232-09) and vegetative vigor (MRID 458232-10) resulted NOAEC and EC_{25}> 0.10 lb a.i./A. In these studies, a single application of 0.10 lb a.i./acre was applied. There were no statistically significant toxic effects observed at this application rate for the measured endpoints.

Febuconazole (PC code 129011, Indar 5% active) Tier I toxicity: seedling emergence (MRID 465375-01) and vegetative vigor (MRID 465187-01) resulted in NOAEC < 0.061 lb a.i./A. In these studies, there were two treatment groups, 0.061 and 0.182 lb a.i./acre. In the seedling emergence study, oat was the most sensitive monocot (12% inhibition of shoot dry weight) and cabbage was the most sensitive dicot was cabbage (34% inhibition of shoot dry weight). In the vegetative vigor study, onion was the most sensitive monocot (38% inhibition of shoot weight) and lettuce was the most sensitive dicot (25% inhibition of shoot weight).

For difenoconazole, the highest proposed application is for use on ornamentals at 0.13 lb a.i./A. The number of applications is not specified on the label. At the proposed application rates, adverse affects to non-target terrestrial plants are not expected based on the visually phytotoxicity testing completed. In addition, using the most conservative endpoints from the above conazone studies, the EC_{25} = 0.039 lb a.i./A and NOAEC <0.061 lb a.i./A did not results in LOC exceedances (using TERRPLANT model) for difenoconazole based on one application to ornamentals. Further analysis on multiple applications must be completed to reduce uncertainty. Based on this weight of evidence, risks to terrestrial plants are unlikely but cannot be precluded.

Age class and sensitivity of effects thresholds

It is generally recognized that test organism age may have a significant impact on the observed sensitivity to a toxicant. The screening risk assessment acute toxicity data for fish are collected on juvenile fish between 0.1 and 5 grams. Aquatic invertebrate acute testing is performed on recommended immature age classes (e.g., first instar for daphnids, second instar for amphipods, stoneflies and mayflies, and third instar for midges). Similarly, acute dietary testing with birds is also performed on juveniles, with mallard being 5-10 days old and quail 10-14 days

old.

Testing of juveniles may overestimate toxicity of older age classes for pesticidal active ingredients, such as difenoconazole, that act directly (without metabolic transformation) because younger age classes may not have the enzymatic systems associated with detoxifying xenobiotics. The screening risk assessment has no current provisions for a generally applied method that accounts for this uncertainty. In so far as the available toxicity data may provide ranges of sensitivity information with respect to age class, the risk assessment uses the most sensitive life-stage information as the conservative screening endpoint.

Use of the Most Sensitive Species Tested

Although the screening risk assessment relies on a selected toxicity endpoint from the most sensitive species tested, it does not necessarily mean that the selected toxicity endpoint reflect sensitivity of the most sensitive species existing in a given environment. The relative position of the most sensitive species tested in the distribution of all possible species is a function of the overall variability among species to a particular chemical. In the case of listed species, there is uncertainty regarding the relationship of the listed species' sensitivity and the most sensitive species tested.

The Agency is not limited to a base set of surrogate toxicity information in establishing risk assessment conclusions. The Agency also considers toxicity data on non-standard test species when available.

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APPENDIX A: Status of Fate and Ecological Effects Data Requirements

Table I. Environmental Fate Data Requirements for Difenoconazole			
Guideline Number	**Data Requirement**	**MRID Number**	**Study Classification**
161-1	Hydrolysis (dark; pH 5, 7, and 9)	42245127	Satisfied
161-2	Photodegradation in water (pH 7)	42245128 46950104 46950105	Supplemental Supplemental Supplemental
161-3	Photodegradation on soil	46950106	Supplemental
161-4	Photodegradation in air	46950108 (Waiver request)	Waived
162-1	Aerobic soil metabolism	42245131 42245132 42245133 46950109 46950110 46950111 46950112 46950114	Supplemental Supplemental Supplemental Supplemental Supplemental Supplemental Acceptable Supplemental
162-2	Anaerobic soil metabolism	42245132 42245133	Supplemental Supplemental
162-3	Anaerobic aquatic metabolism	42245134 46950119	Supplemental Supplemental
162-4	Aerobic aquatic metabolism	42245134 46950116 46950117	Supplemental Supplemental Supplemental
163-1	Adsorption/desorption Adsorption/desorption for CGA205375	42245135 42245136 46950121 46950123	Supplemental Supplemental Acceptable Supplemental
163-2	Laboratory volatility	46950125 (Waiver request)	Waived
163-3	Field volatility		Not required
164-1	Terrestrial field dissipation	42245140	Supplemental
164-1	Terrestrial field dissipation	46950126	Acceptable
164-1	Terrestrial field dissipation	46950127	Acceptable
164-1	Terrestrial field dissipation	46950129	Supplemental
n/a	Storage stability study	46950130	Acceptable
164-2	Aquatic field dissipation		Not required
164-3	Forestry dissipation		Not required
165-4	Accumulation in fish	42245142	Satisfied
166-1	Ground water – small prospective		Not required
166-2	Ground water – small retrospective		Not required
201-1	Droplet size spectrum		Reserved
202-1	Drift field evaluation		Reserved

Table A-2: Ecological Effects Data Requirements for Difenoconazole				
Guideline #		**Data Requirement**	**Species / MRID**	**Study Classification**
71-1	850.2100	Avian Oral LD_{50}	Mallard 422451-05	Acceptable
71-2	850.2200	Avian Dietary LC_{50}	Mallard 422451-04	Acceptable
			Bobwhite quail 422451-03	Acceptable
71-4	850.2300	Avian Reproduction	Mallard 422451-06	Accepable (upgraded based on submission of raw data on a per pen basis.)
			Bobwhite quail 469502-02	Acceptable
72-1	850.1075	Freshwater Fish LC_{50}	Bluegill 422451-09	Acceptable
			Rainbow 422451-07	Acceptable
			Rainbow 422451-08	Acceptable
72-2	850.1010	Freshwater Invertebrate Acute LC_{50}	Daphnia 422451-10	Acceptable
72-3(a)	850.1075	Estuarine/Marine Fish LC_{50}	Sheepshead minnow 422451-12	Acceptable
			Sheepshead minnow 429067-02	Acceptable
72-3(b)	850.1025	Estuarine/Marine Mollusk EC_{50}	Eastern oyster shell 422451-13	Acceptable
			Eastern oyster shell 429067-01	Acceptable
72-3(c)	850.1035 850.1045	Estuarine/Marine Shrimp EC_{50}	Mysid 422451-11	Acceptable
72-4(a)	850.1400	Fish Early Life-Stage	Fathead minnow 422451-15	Supplemental (control contamination in two replicates and large relative standard deviation for fish weight in one control replicate)
			Fathead minnow 451375-02	Invalid (only 2 replicates per group [4 are required], raw data not submitted, and high variability in chemical concentrations of lowest test groups)

Table A-2: Ecological Effects Data Requirements for Difenoconazole				
Guideline #		**Data Requirement**	**Species / MRID**	**Study Classification**
72-4(b)	850.1300 850.1350	Aquatic Invertebrate Life-Cycle	Daphnid 422451-14	Acceptable (upgraded)
72-5	850.1500	Freshwater Fish Full Life-Cycle		reserved
122-1(a)	850.4100	Seed Germ./Seedling Emergence (Tier I)		reserved
122-1(b)	850.4150	Vegetative Vigor (Tier I)		reserved
122-2	850.440	Aquatic Plant Growth (Tier I)		reserved
123-1(a)	850.4225	Seed Germ./Seedling Emergence (Tier II)		reserved
123-1(b)	850.4250	Vegetative Vigor (Tier II)		reserved
123-2	850.4400	Aquatic Plant Growth (Tier II)	FW Green Algae (*Pseudokirchneriella subcapitata*) 469205-12	Acceptable
123-2	850.4400	Aquatic Plant Growth (Tier II)	FW Blue-green Algae (*Anabaena flos-aquae*) 469205-06	Acceptable
123-2	850.4400	Aquatic Plant Growth (Tier II)	FW Diatom (*Navicula pelliculosa*) 469205-08	Acceptable
123-2	850.4400	Aquatic Plant Growth (Tier II)	Marine Diatom (*Skeletonema costatum*) 469205-10	Acceptable
123-2	850.4400	Aquatic Plant Growth (Tier II)	Duckweed (*Lemna gibba*) 469205-04	Acceptable
141-1	850.3020	Honey Bee Acute Contact LD_{50}	Honey bee 422451-23	Invalid (six bees escaped from one test group)

Table A-2: Ecological Effects Data Requirements for Difenoconazole				
Guideline #		**Data Requirement**	**Species / MRID**	**Study Classification**
			Honey bee 422451-24	Acceptable
141-2	850.3030	Honey Bee Residue on Foliage		reserved
none	850.3100	Earthworm	Earthworm 422451-25	Supplemental (short test duration)

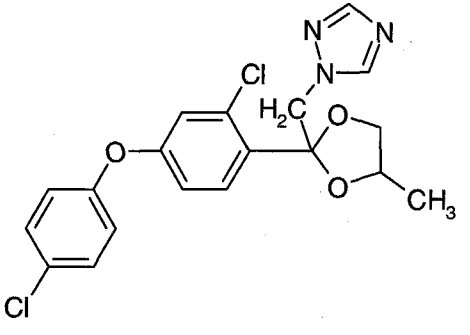
APPENDIX B: Environmental fate data for difenoconazole

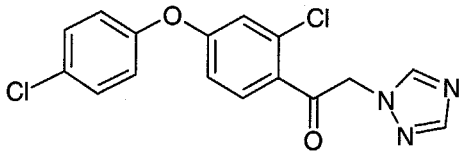
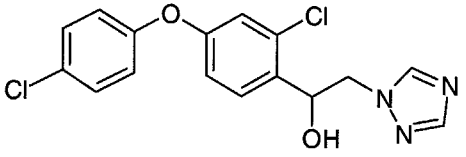
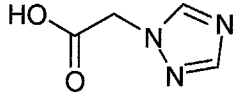
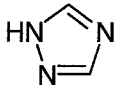
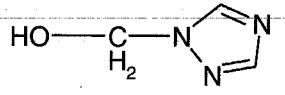
Table B-1. Summary of Difenoconazole Major Degradates and Maximum Percent Formation Observed in the Laboratory and Field Studies.

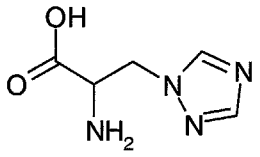
Degradate [1]	*Max Degradate Concentration (% of applied) and Time (days) to Max Concentration*					*Analyzed Degradates*	
	Lab Accumulation in Fish	*Aqueous Photolysis* [2,3,4]	*Aerobic Soil*	*Anaerobic Aquatic*	*Aerobic Aquatic*	*TFD* [5]	*Ground Water*
CGA 205375	51-64%	3.8% (4)	14.8% (360)*	12.6% (175)	11.6% (90)	4.5% (121)[A] 5.3% (364)[B] 3.5% (123)[C] 6.9% (182)[D]	No study
CGA 205374		1.1% (14)	2.1 % (272)	0.8% (247)			
CGA 71019			20.6% (190)	35.9% (350)*			
CGA-142856		41.8% (30)[4]*					
CGA-107069/ CGA-71019		12.27% (30)[4]* 12.9% (9)[4]					

[1] Refer to Table I-2 for name and structure; [2] Difenoconazole was stable under hydrolysis; [3] No meaningful amount of degradates were formed in soil photolysis study (≤ 0.2% and only single replicates); [4] In sterile natural water (MRID 46950105 and MRID 42245128); [5] % of the total applied difenoconazole, based on four applications; [A] under bare soil conditions in GA (MRID 46950126); [B] under potato production condition in ND (MRID 46950129); [C] under a bare plot of loam soil in CA (MRID 46950129); [D] in CA bare loamy sand soil (MRID 42245140); and * The max concentration was observed in the last sampling interval.

Table I-2. Chemical Structures of Difenoconazole and Degradation Products Detected in Submitted Environmental Fate Studies.

Name(s)	Structure	Known Chemical and Fate Parameters	Of Concern?	Rationale
CGA-169374 Difenoconazole 1-[2-[2-Chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole. 1-[[2-[2-Chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole. 1-(2-[4-(4-Chlorophenyoxy)-2-chlorophenyl-(4-methyl-1,3-dioxolan-2-yl)-methyl])-1H-1,2,4-triazole. CAS #: 119446-68-3				

Name(s)	Structure	Known Chemical and Fate Parameters	Of Concern?	Rationale
CGA-205374 [CGA-176459] 1-[2-Chloro-4-(4-chlorophenoxy)-phenyl]-2-[1,2,4]triazol-1-yl-ethanone 1-[2-Chloro-4-(4-chlorophenoxy)phenyl]-2-(1H-1,2,4-triazol-1-yl)-ethanone CAS #: 136815-80-0				
CGA-205375 [CGA-211391] 1-[2-Chloro-4-(4-chlorophenoxy)-phenyl]-2-[1,2,4]triazol-1-yl-ethanol alpha-[2-Chloro-4-(4-chlorophenoxy)phenyl]-1H-1,2,4-triazole-1-ethanol. CAS #: 117018-19-6		Mobility data available		
CGA-142856 [1,2,4]Triazol-1-yl-acetic acid 1H-1,2,4-Triazole-1-acetic acid. CAS #: 28711-29-7		DW assessment completed in 2006	Yes	
CGA-71019 1-H-(1,2,4)-Triazole 1H-1,2,4-Triazole 4H-[1,2,4]Triazole		DW assessment completed in 2006	Yes	potentially more toxic or as toxic as parent
CAS #: 288-88-0				
CGA-107069 1-H-(1,2,4)-Triazole-1-methanol CAS #: 74205-82-6				

Name(s)	Structure	Known Chemical and Fate Parameters	Of Concern?	Rationale
CGA-131013 2-Amino-3-[1,2,4]triazol-1-yl-propionic acid alpha-Amino-1H-1,2,4-triazole-1-propanoic acid CAS #: 86362-20-1				

1. Degradation

Hydrolysis: 161-1
Study MRID 42245127 (Satisfied)
Atkins, R.H. 1991. Hydrolysis of [^{14}C]CGA-169374 at pH 5, 7, and 9. PTRL Project No. 494. Unpublished study performed by PTRL, East Inc., Richmond, KY and submitted by Ciba-Geigy, Greensboro, NC.

[^{14}C]Triazole ring-labeled difenoconazole did not hydrolyze in pH 5, 7, and 9 aqueous buffers when incubated at 25 C for 30 days. The parent compound comprised 95.2-109.0% of the initial radioactivity throughout the study (Table V). There were two unknown compounds designated A and B which comprised maximums of 1.2 and 1.1% of the initial radioactivity, respectively; the unknowns were not consistently recovered from all samples at every sampling interval. Material balances ranged from 94.9 to 114.2% of the initial radioactivity at all pH levels at each sampling interval.

Aqueous Photolysis: 161-2
Study MRID 42245128 (Supplemental)
Spare, W. C. 1991. Aqueous photolysis of ^{14}C-CGA-169374. Agrisearch Project No: 12195. Unpublished study performed by Agrisearch Incorporated, Frederick, MD; and submitted by CIBA-GEIGY Corporation, Greensboro, NC.

Triazole ring-labeled [3,5-^{14}C]difenoconazole, at a nominal concentration of 1 ppm (actual concentration of 0.86 ppm), degraded with of 6 days ($r^2 = 0.97$) in sterilized pH 7 aqueous buffer solution which was irradiated with a xenon arc lamp (12 hour light/dark cycle) and maintained at 25 ± 1 □C for up to 30 days. The parent compound was relatively stable in the pH 7 dark control solutions. In the irradiated solutions, the parent compound was initially 98.3% of the applied radioactivity, decreased to 55.4% by 5 days, was 15.8-16.4% from 9 to 15 days posttreatment, and was 2.3% at 30 days. The major degradate CGA-71019 was initially (day 5) 9.2% of the applied radioactivity, was a maximum of 12.9% at 9 days posttreatment, and was 8.6-11.2% from 15 to 30 days. An unidentified major degradate (Unknown 2) was 4.0-5.6% of the applied radioactivity from 1 to 3 days posttreatment, was a maximum of 19.1% at 9 days, and was 3.9-6.1% from 22 to 30 days. An unidentified major degradate (Unknown 1) was initially (day 2) 6.6% of the applied radioactivity, was a maximum of 14.0% at 5 days posttreatment, and was 0.3% at 30 days. The minor degradates CGA-205375 and CGA-205374 were present at ≤2.9% and ≤1.5% of the applied radioactivity, respectively, throughout the incubation period. Uncharacterized polar radioactivity was initially (day 2) 0.5% (one sample) of the applied radioactivity, increased to 13.5% by 5 days posttreatment, was 48.3% at 9 days, and was a maximum of 84.6% at 30 days. In the dark control solutions, the parent compound was present at 99.7-104.8% of the applied radioactivity from 0 to 22 days posttreatment, and decreased to 88.4% by 30 days. The minor degradate CGA-205374 was detected once, at 1.4% of the applied radioactivity at 5 days posttreatment.

Aqueous Photolysis: 161-2
Study MRID 46950104 (Supplemental)
Clark, A. 2005. Photodegradation of [triazolyl-3,5] ^{14}C-CGA-169374 in sterile natural water under artificial light. Unpublished study performed, sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, North Carolina. Syngenta Study No.: T000137-05. Study start date August 17, 2004; completion date not reported (p. 10). Final report issued January 11, 2005.

The aqueous phototransformation of [triazolyl-3, 5]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole; CGA-169374; radiochemical purity 99.3%), at 1.0 mg a.i./L, was studied at 25°C in sterilized natural water that was continuously irradiated using a UV-filtered xenon arc lamp for 30 days. The spectral energy distribution of the artificial light was comparable to natural sunlight in Greensboro, NC (latitude 36°5.86'N; longitude 79°56.24'W) on July 15, 2004. Since difenoconazole was stable in the dark control, the phototransformation half-life is equivalent to the half-life observed in the irradiated samples. The phototransformation half-life of difenoconazole was 4.6 days based on the continuous irradiation used in the study, or 9.2 days based on a 12-hour light/12-hour dark cycle. In the irradiated samples, three major transformation products were isolated and two minor transformation products were identified. The major transformation products were: CGA-142856 (1H-1,2,4-triazole-1-acetic acid; maximum of 41.83% of the applied at 30 days), and CGA-107069 (1H-1,2,4-triazole-1-methanol) plus CGA-71019 (1H-1,2,4-triazole), which were not separated in this analytical system (maximum total 12.27% at 30 days). This study is classified as supplemental. Due to a failure of one of the Suntest units and a prolonged increase in temperature after day 2, the irradiated samples were re-dosed with 10 mL of the dose solution (p. 16). In addition, there is a significant discrepancy between this study results and another aqueous photodegradation study submitted by the registrant (MRID 46950105). The study author concluded that the photolytic degradation in this study is attributable to absorption by organic components present in the water. The results of another registrant-submitted study indicate that difenoconazole is stable to direct photolysis in an aqueous system at pH 7.

Aqueous Photolysis: 161-2
Study MRID 46950105 (Supplemental)
Van der Gaauw, A. 2002. Aqueous photolysis of CGA 169374 [^{14}C-triazole] under laboratory conditions. Unpublished study performed by RCC Ltd., Itingen, Switzerland and sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, North Carolina. RCC Study No.: 815635. Syngenta No.: T003017-03. Experiment started May 30, 2001 and completed July 6, 2001 (p. 14). Final report issued March 19, 2002.

The aqueous phototransformation of [triazole-U-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole; CGA-169374; radiochemical purity 100.0%), at 1.516 mg a.i./L, was studied at 25°C in sterile pH 7 buffer (phosphate) solution that was continuously irradiated using a UV-filtered xenon arc lamp for 15 days. The intensity of the lamp was 52.0W/m^2 at 300-400 nm, which was higher than the intensity of summer light (41.6 W/m^2) as measured on July 27, 2001 in

Itingen, Switzerland. This experiment was conducted in accordance with USEPA Subdivision N § 161-2 guidelines and in compliance with Swiss and OECD Principles of GLP. The intensity of artificial light at 300-400 nm was 52.0 W/m^2, which was higher than the intensity of summer light (41.6 W/m^2) as measured on Jul 27, 2001, in Itingen, Switzerland. Therefore, 1 hour of artificial light was equivalent to ca. 1.25 hours of sunlight. The environmental phototransformation half-life of difenoconazole is *ca.* 7.6 months (i.e., 228 days). This study is classified as supplemental for reason that the study was terminated before 30 days and the estimated half-life is of uncertain value since it is extrapolated well beyond the duration of the study. In addition, there is a significant discrepancy between this study results and another aqueous photodegradation study submitted by the registrant. The study author concluded that the photolytic degradation in another registrant-submitted study is attributable to absorption by organic components present in the water (MRID 46950104).

Photodegradation on soil (161-3)

Study MRID 46950106 (Supplemental)

Atkins, R.H. 1994. Soil surface photolysis of phenyl-^{14}C-CGA-169374 under artificial sunlight. Unpublished study performed by PTRL East, Inc., Richmond, Kentucky and sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, North Carolina. PTRL Project No.: 791. Syngenta No.: T000279-93. Experiment started October 28, 1993 and completed April 27, 1994 (p. 11). Final report issued December 15, 1994.

The phototransformation of [pheny-U-^{14}C]labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole; CGA-169374; radiochemical purity 99.2%) was studied on sandy loam soil (pH 6.8-7.3, organic matter 1.72-1.87%) from Kentucky under 12 hour light/12 hour dark irradiation cycle for 30 days at 25 ± 1°C and a soil moisture content of 75% of 1/3 bar. Difenoconazole was applied to the soil at a rate of 10.22 mg/kg. The experiment was conducted in accordance with USEPA Subdivision N Guideline § 161-3 and in compliance with USEPA Good Laboratory Practice standards (40 CFR, Part 160). The intensity of the Xenon arc lamp was 4022 ± 1 μW/cm^2. Artificial light energy was 87.0 W·min/cm^2 for the 30 day study, while sunlight intensity measured at PTRL East, Inc. (37" 52' 00" north latitude, 84" 20' 04" west longitude) from June 1990 to September 1991 ranged from 104.7-246.9 W·min/cm^2 for 30 day periods. Duplicate irradiated samples and dark controls were collected at 0, 1, 3, 5, 7, 11, 21 and 30 days posttreatment. Difenoconazole degraded with a reviewer-calculated half-life of 990 days in the irradiated samples based on the 12-hour light/12-hour dark cycle used in the study. The intensity of the artificial light averaged 87.0 W·min/cm^2 during the 30-day study, compared to natural sunlight (37" 52' 00" north latitude, 84" 20' 04" west longitude) which ranged from 104.7-246.9 W·min/cm^2 during 30-day periods between June and September. One hour of artificial light is equal to *ca.* 0.35 to 0.83 hours of natural sunlight. Therefore, the environmental phototransformation half-life of difenoconazole may range from 349 to 823 days during summer months depending on conditions. This study is classified as supplemental. The study indicates that difenoconazole is stable to soil photodegradation. The obtained environmental phototransformation half-life is of uncertain value

since it is extrapolated well beyond the duration of the study. No significant deviations from good scientific practices were noted.

2. Metabolism

Aerobic and Anaerobic Soil Metabolism 162-1, 162-2

Study MRID 42245131 (Supplemental)
Gonzalez-Valero, J. 1991. (Interim Report) Rate of degradation of ^{14}C-CGA-169374 in aerobic soil at various conditions. Laboratory Project IDs: 91GJ01 and 91GJ02. Unpublished study performed by CIBA-GEIGY Limited, Basel, SWITZERLAND; and submitted by CIBA-GEIGY Corp., Greensboro, NC.

The study indicated that difenoconazole is moderately persistent in soil under aerobic conditions when applied at 0.1 mg ai/kg-soil. The registrant calculated a half-life (reported as a DT_{50}) of 79 days, and the study reviewer calculated a half-life of 85 days. The material balance was outside the reasonable range of 90-110% in this study. The material balance (based on LSC analysis) decreased over time and was 120.5-123.2% of the applied radioactivity at 0-30 days posttreatment and were 95.9-102.7% of the applied at 60-120 days posttreatment. Also, the soil moisture content was maintained at 60% of 0.33 bar, where Subdivision N guidelines require that the soil moisture content be adjusted to 75% of 0.33 bar.

The high treatment rate study used an application rate of 10 mg ai/kg-soil (8 X the maximum label rate) and was terminated before the pattern of decline of the test substance was established.

Due to these major issues as well as other concerns detailed in the DER, the study was considered to be supplemental. Since the material balance for the low application rate (0.1 mg ai/kg-soil) is beyond the acceptable range of 90-110 %, this study should not be used to estimate an aerobic soil metabolism half-life for modeling. Therefore, the compound is assumed to be stable to aerobic soil metabolism.

Study MRID 42245132 (Supplemental)
Spare, W. C. 1987. Soil metabolism of CGA-169374 under aerobic, aerobic/anaerobic and sterile conditions. Laboratory Project No.: 1239. Unpublished study performed by Agrisearch Incorporated, Frederick, MD; and submitted by CIBA-GEIGY Corporation, Greensboro, NC.

The parent compound was relatively stable in both aerobic and anaerobic loam soil. The registrant-calculated half-lives for the parent in aerobic and anaerobic loam soil systems were 1600 days and 947 days, respectively.

In the aerobic soil metabolism study, radiolabeled difenoconozole, at a nominal application rate of 10 ppm, was relatively stable in aerobic loam soil that was incubated in darkness at 25 ± 1 □C for

up to 12 months. However, data were variable over time. Data reported percentages of the applied radioactivity represent percentages of the nominal application. Concentration data (in ppm) were reviewer-calculated based on the percentage of the applied radioactivity and the nominal application rate. The parent compound was initially present in the soil at 91.4% (9.1 ppm) of the applied radioactivity and was variable at 62.0-99.7% (6.2-10.0 ppm) at 1-365 days posttreatment. No major degradates were detected; one unidentified minor degradate was detected. Nonextractable [^{14}C]residues were initially (time 0) 2.3% (0.23 ppm) of the applied radioactivity, increased to 18.7% (1.9 ppm) by 3 months, and were 15.5% (1.6 ppm) at 12 months posttreatment (reviewer-calculated means). Evolved $^{14}CO_2$ and [^{14}C]organic volatiles were not detected.

In the anaerobic soil metabolism study, radiolabeled difenoconozole, at a nominal application rate of 10 ppm, was stable in flooded loam soil that was incubated anaerobically (nitrogen) in darkness at 25 ± 1 □C for up to 61 days following a 30-day aerobic incubation period. However, data were variable throughout the 30-day aerobic incubation, and only two samples were taken after anaerobic conditions were induced. Data reported as percentages of the applied radioactivity represent percentages of the nominal application. Data were not reported in units of concentration. Time 0 data were determined prior to flooding (following 30 days of aerobic incubation). Sampling intervals are reported as days following the initiation of the anaerobic phase of the study. Total system data were not reported. The parent compound was initially present in the soil phase at 87.1% of the applied radioactivity and was 83.2-83.3% at 28-61 days. No major degradates were detected; one unidentified minor degradate was detected. Nonextractable [^{14}C]residues were initially (time 0) 8.9% of the applied radioactivity and were 21.0-21.6% at 28-61 days following the initiation of anaerobic conditions (reviewer-calculated mean). Evolved $^{14}CO_2$ and [^{14}C]organic volatiles were not measured. [^{14}C]Residues in the water phase (≤2.1% of the applied radioactivity) were not characterized.

Study MRID 42245133 (Supplemental)
Spare, W. C. 1992. Soil metabolism of CGA-169374 under aerobic, aerobic/anaerobic, and sterile conditions. Agrisearch Project No.: 1294. Unpublished study performed by Agrisearch Incorporated, Frederick, MD; and submitted by CIBA-GEIGY Corporation, Greensboro, NC.

Triazole ring-labeled [3,5-^{14}C]difenoconozole, at a nominal application rate of 10 ppm, was relatively stable (registrant-calculated half-life of 1059 days; $r^2 = 0.69$) in aerobic sandy loam soil that was incubated in darkness at 23.5-26.0□C for up to 365 days.

In the aerobic soil metabolism study, triazole ring-labeled [3,5-^{14}C]difenoconozole, at a nominal application rate of 10 ppm, was relatively stable (registrant-calculated half-life of 1059 days; $r^2 = 0.69$) in aerobic sandy loam soil that was incubated in darkness at 23.5-26.0□C for up to 365 days. All data, reported as percentages of the applied radioactivity, represent percentages of the nominal application. Data are reviewer-calculated means of two replicates, each of which were analyzed by two different TLC systems (unless otherwise noted). Concentration data (in ppm) were reviewer-calculated based on the percentage of the applied radioactivity and the nominal application rate. The parent compound was initially 95.6% (9.6 ppm) of the applied radioactivity,

was 82.2-83.0% (8.2-8.3 ppm) at 14-91days, and was 69.1% (6.9 ppm) at 365 days posttreatment. The minor degradate CGA-205374 (chemical name not reported) was initially (time 0) 0.9% (0.09 ppm) of the applied radioactivity and was 3.6% (0.36 ppm) at 365 days posttreatment (detected by only one TLC system). The minor degradate CGA 205375 was initially (time 0) 0.73% (0.073 ppm) of the applied radioactivity, was a maximum of 2.7% (0.27 ppm) at 181 days, and was 2.0% (0.2 ppm) at 365 days posttreatment. Nonextractable [^{14}C]residues were initially (time 0) 1.6% (0.16 ppm) of the applied radioactivity, increased to 6.0% (0.6 ppm) by 30 days and a maximum of 8.7% (0.87 ppm) by 181 days, and were 5.5% (0.55 ppm) at 272-365 days posttreatment. Total [^{14}C]volatiles were ≤0.9% (0.09 ppm) of the applied radioactivity throughout the incubation period.

In aerobic sterile control samples, triazole ring-labeled [3,5-^{14}C]difenoconozole, at a nominal application rate of 10 ppm, was relatively stable in sterile, aerobic sandy loam soil that was incubated in darkness at 23.5-26.0□C for up to 181 days. All data, reported as percentages of the applied radioactivity, represent percentages of the nominal application Data are reviewer-calculated means of two replicates, each of which were analyzed by two different TLC systems. Concentration data (in ppm) were reviewer-calculated based on the percentage of the applied radioactivity and the nominal application rate. The parent compound was initially 95.6% (9.6 ppm) of the applied radioactivity and was 88.7% (8.9 ppm) at 181 days posttreatment. The minor degradate CGA-205374 was present at 0.35-0.95% (0.035-0.1 ppm) of the applied radioactivity at 30-181 days posttreatment (detected by only one TLC system). The minor degradate CGA-205375 was present at 0.60-1.7% (0.060-0.71 ppm) of the applied radioactivity at 30-181 days posttreatment. Nonextractable [^{14}C]residues were 2.1-3.8% (0.21-0.38 ppm) of the applied radioactivity at 30-181 days posttreatment. Total [^{14}C]volatiles were ≤0.1% (0.01 ppm) of the applied radioactivity.

In the anaerobic soil metabolism study, triazole ring-labeled [3,5-^{14}C]difenoconozole, at a nominal application rate of 10 ppm, was relatively stable in flooded sandy loam soil that was incubated anaerobically (nitrogen) in darkness at 23.5-26.0□C for up to 61 days following a 30-day aerobic incubation period. All data, reported as percentages of the applied radioactivity, represent percentages of the nominal application Data are reviewer-calculated means of two replicates, each of which were analyzed by two different TLC systems. Data were not reported in units of concentration. Time-0 data were determined prior to flooding (following 30 days of aerobic incubation). Sampling intervals are reported as days following the initiation of the anaerobic phase of the study. In the total soil/water system, the parent compound was initially present at 82.6% of the applied radioactivity and was 75.7-79.7% at 29-61 days following the initiation of anaerobic conditions. In the soil phase, the parent compound was initially present at 82.6% of the applied radioactivity and was 73.1-77.2% at 29-61 days. The minor degradate CGA-205374 was initially (time 0) 1.9% of the applied radioactivity and was 3.6% at 61 days following the initiation of anaerobic conditions (detected by only one TLC system). The minor degradate CGA-205375 was initially (time 0) 1.1% of the applied radioactivity (three of four replicates) and increased to 2.5% by 61 days following the initiation of anaerobic conditions. Nonextractable [^{14}C]residues were initially (time 0) 6.0% of the applied radioactivity, were 6.2% at 29 days, and were 4.3% at

61 days following the initiation of anaerobic conditions. In the water phase, the parent compound was present at 2.5-2.7% of the applied radioactivity at 29-61 days following the initiation of anaerobic conditions. The minor degradate CGA-205374 was 0.7-0.9% of the applied radioactivity at 29-61 days following the initiation of anaerobic conditions (detected by only one TLC system). The minor degradate CGA-205375 was 0.45-1.1% of the applied radioactivity at 29-61 days following the initiation of anaerobic conditions. [^{14}C]Volatiles were not measured.

Aerobic Soil Metabolism (162-1)

Study MRID 46950109 (Supplemental)
Mamouni, A. 2000. Degradation and metabolism of CGA-169374 [^{14}C-chlorophenyl] in one soil incubated under aerobic conditions. Unpublished study performed by RCC Ltd., Itingen, Switzerland, and sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. RCC Study No.: 738617. Syngenta No.: T002318-06. Experiment initiated on September 7, 1999, and completed on July 14, 2000 (p. 10). Final report issued December 19, 2000.

The biotransformation of [chlorophenyl-U-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole of 100% purity) was studied in a loam soil (pH 7.18, organic carbon 2.15%) from Switzerland for 293 days under aerobic conditions in the dark at 20 ± 1°C and 40% of the maximum water holding capacity. [^{14}C]Difenoconazole was applied to the soil at 0.190 mg a.i./kg, which was reported to be equivalent to 142.5 g a.i./ha. The experiment was conducted in accordance with Commission Directive 95/36/EC (1995) and OECD Draft Guidelines (1998), and in compliance with OECD (1997) and Swiss Principles of Good Laboratory Practice (1986). The test system consisted of glass metabolism flasks containing moist treated soil that were attached to individual traps for the collection of CO_2 and volatile organics. Moistened air continually was passed through a sample, then sequentially through ethylene glycol, 0.1N H_2SO_4 and 2N NaOH solutions. Duplicate samples were collected after 0, 7, 28, 56, 84, 120, and 293 days of incubation; single samples were collected after 3, 14, 100 and 190 days. The incubation temperature (20 ± 1°C), soil moisture content, and soil aerobicity were reportedly maintained throughout the experiment; no supporting data were provided. The soil remained viable throughout the study.

[^{14}C]Difenoconazole decreased from an average 100.7% of the applied at time 0 to 51.9% at 100 days posttreatment, 49.9% at 120 days, 36.4% at 190 days and 18.4% at 293 days. Based on both first order linear regression analysis and nonlinear regression analysis, difenoconazole dissipated with a reviewer-calculated half-life/DT50 of 119.5 days. No major transformation products were isolated. The only minor transformation product that was identified, 1-[2-chloro-4-(4-chlorophenoxy)-phenyl]-2-[1,2,4]triazol-1-yl-ethanol (CGA 205375, M1), averaged a maximum of 5.1% of the applied. Nonextractable [^{14}C]residues increased from 3.2% of the applied at time 0 to 38.0% at 293 days posttreatment. At 293 days posttreatment, $^{14}CO_2$ totaled 23.4% of the applied. Volatile organics totaled 0.7% at 190 days and were <0.1% at all other sampling intervals. This study is classified as supplemental. No significant deviations from good scientific practices were noted. Material balances steadily decreased from an average 103.9% of the applied at time 0 to 85.5 ± 3.0 at study termination (293-day). The study author attributed the loss of radioactivity to the loss of CO_2 during sample workup, but provided no supporting data. In addition, it could not be determined if the Swiss soil used in this study is comparable to soils found in a typical difenoconazole use area in the United States.

Study MRID 46950110 (Supplemental)
Mamouni, A. 2000. Degradation and metabolism of CGA-169374 [^{14}C-triazole] in one soil incubated under aerobic conditions. Unpublished study performed by RCC Ltd., Itingen, Switzerland, and sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. RCC Study No.: 738606. Syngenta No.: T002319-06. Experiment initiated on September 3, 1999, and completed on July 17, 2000 (p. 10). Final report issued December 19, 2000.

The biotransformation of [triazole-U-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole ≥99% radiochemical purity), was studied in a loam soil (pH 7.18, organic carbon 2.15%) from Switzerland for 293 days under aerobic conditions in the dark at 20 ± 1°C and 40% of the maximum water holding capacity. [^{14}C]Difenoconazole was applied to the soil at 0.188 mg a.i./kg, which was reported to be equivalent to 141 g a.i./ha. The experiment was conducted in accordance with Commission Directive 95/36/EC (1995) and OECD Draft Guidelines (1998), and in compliance with OECD (1997) and Swiss Principles of Good Laboratory Practice (1986). The test system consisted of glass metabolism flasks containing moist treated soil that were attached to traps for the collection of CO_2 and volatile organics. Moistened air continually was passed through a sample, then sequentially through ethylene glycol, 0.1N H_2SO_4 and 2N NaOH solutions. Duplicate samples were collected after 0, 7, 28, 56, 84, 120, and 293 days of incubation; single samples were collected after 3, 14, 100, 135 and 190 days. The incubation temperature (20 ± 1°C), soil moisture content, and soil aerobicity were reportedly maintained throughout the experiment; no supporting data were provided. The soil remained viable throughout the study. Overall [^{14}C]residue recoveries averaged 93.7 ± 3.8% of the applied (range 88.0-100.9%). [^{14}C]Difenoconazole decreased from an average 94.5% of the applied at time 0 to 55.9% at 84 days posttreatment, 48.2% at 100 days, 28.9% at 190 days, and 13.6% at 293 days (study termination). Based on both first order linear regression analysis and nonlinear regression analysis, difenoconazole dissipated with a reviewer-calculated half-life/DT50 of 103.5 days. The

observed DT50 was *ca.* 100 days. The only major transformation product isolated, 1-H-(1,2,4)-triazole (CGA 71019, M3), was a maximum of 20.6% at 190 days posttreatment and averaged 17.8% at 293 days. Nonextractable [^{14}C]residues increased from 3.8% of the applied at time 0 to 48.9% at 293 days posttreatment. At 293 days posttreatment, $^{14}CO_2$ totaled 4.5% of the applied. Volatile organics totaled <0.1% of the applied at all sampling intervals. This study is classified as supplemental since it could not be determined if the Swiss soil used in this study is comparable to soils found in a typical difenoconazole use area in the United States. No significant deviations from good scientific practices were noted.

Study MRID 46950111 (Supplemental)
Mamouni, A. 2002. Degradation of CGA-169374 [^{14}C-chlorophenyl] in three soils incubated under aerobic conditions. Unpublished study performed by RCC Ltd., Itingen, Switzerland, and sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. RCC Study No.: 775438. Syngenta No.: T002320-06. Experiment initiated on October 25, 2000, and completed on July 18, 2001 (p. 12). Final report issued June 6, 2002.

The biotransformation of [chlorophenoxy-U-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole, radiochemical purity 100%) was studied in a sandy loam soil (pH 7.4, organic carbon 1.2%) from Switzerland, a sandy loam/loamy sand soil (pH 7.5, organic carbon 1.2%) from Switzerland and a silty clay loam soil (pH 6.7, organic carbon <0.30%) from France for 228 days under aerobic conditions in the dark at 20 ± 2°C and 40% of the maximum water holding capacity. [^{14}C]Difenoconazole was applied to the soil at 0.25 mg a.i./kg, which was reported to be equivalent to 257 g a.i./ha. The experiment was conducted in accordance with Commission Directive 95/36/EC (1995) and OECD Draft Guidelines (2000), and in compliance with Swiss Principles of Good Laboratory Practice (2000). The test system consisted of glass metabolism flasks containing moist treated soil that were attached to individual traps for the collection of CO_2 and volatile organics. Moistened air continually was passed through a sample, then sequentially through ethylene glycol and 2N NaOH solutions. Duplicate samples of each soil were collected after 0, 14 and 120 days of incubation; single samples were collected after 28, 56, 84, 175 and 228 days. The incubation temperature (20 ± 2°C), soil moisture content, and soil aerobicity were reportedly maintained throughout the experiment; no supporting data were provided. The soil remained viable throughout the study. Overall [^{14}C]residue recoveries averaged 97.5 ± 2.4% of the applied (range 92.6%-100.7%) in the Schanz sandy loam soil, 98.2 ± 1.6% (range 95.8%-100.1%) in the Pappelacker sandy loam/loamy sand soil, and 98.7 ± 2.0% (range 94.9%-101.5%) in the Senozan silty clay loam soil. Recoveries were variable, and there was no clear pattern of loss of [^{14}C]residues over time.

[^{14}C]Difenoconazole decreased from 97.8-99.3% of the applied in the three soils at time 0 to 56.8-61.2% at 120 days posttreatment, and averaged 38.7% in the sandy loam soil, 51.0% in the sandy loam/loamy sand soil, and 44.7% in the silty clay loam soil at study termination (228 days). Based on first order linear regression analysis, [^{14}C]difenoconazole dissipated with a half-life of 165 days in sandy loam soil and 204 days in both the sandy loam/loamy sand and silty clay loam soils.

Based on nonlinear regression analysis, the half-live values were 158 days in the sandy loam soil, 187 days in the sandy loam/loamy sand soil, and 198 days in the silty clay loam soils. The observed DT50 values were *ca.* 150, 228 and 175 days in the sandy loam, sandy loam/loamy sand and silty clay loam soils, respectively.

This study is classified as supplemental since it could not be determined if the Swiss and French soils used in this study are comparable to soils found in a typical difenoconazole use area in the United States. In addition, the experiments were terminated after 228 days, at which time 39-51% of the applied difenoconazole remained undegraded. Subdivision N guidelines specify that aerobic soil metabolism studies be conducted for 1 year or until the pattern of decline of the parent compound and the formation and decline of the transformation products is clearly established. No significant deviations from good scientific practices were noted.

Study MRID 46950112 (Acceptable)
Adam, D. 2005. Aerobic soil metabolism of [4-chlorophenoxy-U-^{14}C]-CGA-169374. Unpublished study performed by RCC Ltd., Itingen, Switzerland; sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. RCC No.: 853638. Syngenta No.: T003019-03. Experiment started May 25, 2004, and completed July 7, 2005 (p. 12). Final report issued December 21, 2005.

The biotransformation of [4-chlorophenoxy-U-^{14}C]difenoconazole (CGA 169374; 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether; radiochemical purity ≥99.0%) was studied in a loamy sand soil (pH 6.8, organic carbon 0.3%) from California for 360 days under aerobic conditions in darkness at 25 ± 1°C and a soil moisture of 75% of 1/3 bar. [^{14}C]Difenoconazole was applied at a rate of 0.084 mg a.i./kg, equivalent to a field rate of *ca.* 125 g a.i./ha. This study was conducted in accordance with USEPA Subdivision N Guideline §162-1, and in compliance with the Swiss GLP standards. The test system consisted of aluminum foil-wrapped, silylated glass metabolism flasks containing moist treated soil that were attached to individual traps for the collection of CO_2 and volatile organics. Moistened air continually was passed (flow rate *ca.* 30-60 mL/minute) through a sample, then sequentially through polyurethane foam and two 10% KOH solutions. Duplicate samples were collected at 0, 3, 7, 15, 30, 58, 99, 120, 150, 181, 269 and 360 days posttreatment. The incubation temperature (25 ± 1°C), soil moisture content, and soil aerobicity were maintained throughout the experiment. The soil remained viable throughout the study. Overall recovery of [^{14}C]residues averaged 99.5 ± 1.6% (range 95.7-102.8%) of the applied. There was no pattern of loss of [^{14}C]residues over time.

[^{14}C]Difenoconazole decreased from average of 97.6% of the applied at time 0 to 54.2% at 360 days posttreatment. Based on both first-order linear and nonlinear regression analyses, difenoconazole degraded with half-life values of 433.2 days and 407.7 days, respectively. These half-life values are of uncertain value since they are extrapolated beyond the duration of the study. The observed DT50 value is greater than 360 days. The only major transformation product that was isolated was 1-[2-chloro-4-(4-chlorophenoxy)-phenyl]-2-[1,2,4]triazol-1-yl-ethanol (CGA

205375), which averaged a maximum of 14.8% of the applied at study termination. Nonextractable [^{14}C]residues increased to 14.4% at 360 days. $^{14}CO_2$ and volatile organics totaled 15.0% and 0.1% of the applied, respectively, at 360 days posttreatment. This study is classified as acceptable. No significant deviations from good scientific practices were noted except that the determined half-life is of uncertain value because it was extrapolated beyond the duration of the study (i.e. 360 days).

Study MRID 46950114 (Supplemental)
Adam, D. 2005. Aerobic soil metabolism of [triazolyl-3,5]^{14}C-CGA 169374 (including Final Report Amendment 1). Unpublished study performed by RCC Ltd., Itingen, Switzerland; sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. RCC No.: 853637. Syngenta No.: T003018-03. Experiment started May 10, 2004, and completed June 22, 2005 (p. 12). Final report issued December 21, 2005.

The biotransformation of [triazolyl-3,5-^{14}C] 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (CGA 169374; radiochemical purity 98.4%) was studied in a loamy sand soil (pH 6.8, organic carbon 0.3%) from California for 372 days under aerobic conditions in darkness at 25 ± 1°C and soil moisture of 75% of 1/3 bar. [^{14}C]Difenoconazole was applied at a rate of 0.08 mg a.i./kg, equivalent to a field rate of *ca.* 125 g a.i./ha. This study was conducted in accordance with USEPA Subdivision N Guideline §162-1, and in compliance with the Swiss GLP standards. The test system consisted of aluminum foil-wrapped, silylated glass metabolism flasks containing moist treated soil that were attached to individual traps for the collection of CO_2 and volatile organics. Moistened air continually was passed (flow rate *ca.* 30-60 mL/minute) through a sample, then sequentially through polyurethane foam and two 10% KOH solutions. Duplicate samples were collected at 0, 3, 7, 15, 27, 58, 90, 127, 150, 178, 272 and 372 days posttreatment. The incubation temperature (25 ± 1°C), soil moisture content, and soil aerobicity were maintained throughout the experiment. The soil remained viable throughout the study. Overall recovery of [^{14}C]residues averaged 98.3 ± 5.7% (range 95.7-104.6%) of the applied. There was no pattern of loss of [^{14}C]residues over time. [^{14}C]Difenoconazole decreased from an average of 97.4% of the applied at time 0 to 58.8% at 372 days posttreatment. Based on both first-order linear and nonlinear regression analyses, difenoconazole degraded with half-life value of 533 days. The half-life value is of uncertain value since itnis extrapolated well beyond the duration of the study. The observed DT50 value is >372 days. No major transformation products were isolated. Nonextractable [^{14}C]residues increased to 18.4% at 372 days. $^{14}CO_2$ and volatile organics totaled 4.2% and 0.1% of the applied, respectively, at 372 days posttreatment. This study is classified as supplemental. No significant deviations from good scientific practices were noted except that recovery of total residues in one of the 15-day posttreatment samples was poor (71.1% of the applied), and for the half-life calculations, the 15-day posttreatment data were not included. The determined half-life is of uncertain value because it was extrapolated well beyond the duration of the study (i.e. 372 days). In addition, it was noted that the biomass included anaerobic bacteria along aerobic bacteria, fungi, and actinomycetes. To assure aerobic conditions, during the test, moistened air was continually drawn through the test samples.

Anaerobic aquatic metabolism (162-3)

Study MRID 42245134 (Supplemental)
Spare, W. 1989. Aerobic and anaerobic aquatic metabolism of CGA-169374. Agrisearch Project No: 1240. Unpublished study performed by Agrisearch Inc. Fredrick, MD; and submitted by Agricultural Division, CIBA-GEIGY Corp., Greensboro, NC.

Under anaerobic conditions, triazole ring labeled [3,5-^{14}C] difenoconazole, at a nominal concentration of 10.0 µg/mL (reviewer calculated), was relatively stable (registrant- calculated half-life was 1245 days; $r^2 = 0.62$) in flooded loam sediment that was incubated in darkness at 25 ± 1 °C for up to 365 days; however, data were variable between sampling intervals. The parent compound was present at 78.0% of the applied radioactivity at 365 days posttreatment. All reported data are the means of two replicates which were both analyzed by two separate TLC systems, unless otherwise reported. In the total sediment/water system, the parent compound was initially 95.6% (single replicates) of the applied radioactivity, decreased with variability to 83.3% by 7 days posttreatment, was 96.4% at 91 days, and decreased with variability to 78.0% by 365 days. In the water phase, the parent compound was initially 95.6% (single replicate; prior to flooding of the sediment) of the applied radioactivity and was 8.7% at 1 day posttreatment (reviewer-calculated), the last sampling interval for which the water phase of the applied radioactivity [^{14}C] residues were characterized. In the sediment phase, the parent compound was 82.4% of the applied radioactivity at 1 day posttreatment, was 95.4% at 3 days, 83.3% at 7 days, and 96.4% at 91days and decreased with variability to78.0% by 365 days. Non extractable [^{14}C] residues were≤ 8.1%(reviewer-calculated) of the applied radioactivity throughout the incubation period. [^{14}C] Volatiles were not detected during the incubation period; tabular data were not presented. The distribution ratio (reviewer-calculated) of [^{14}C] between sediment and water phases was 9.4:1 at 1 day posttreatment, 26.5:1 at 3 days, and 52.9:1 (single replicate) at 365 days.

Study MRID 46950117 (Supplemental)
Lin, Y. 2006. Difenoconazole (CGA 169374): anaerobic aquatic metabolism of [triazolyl-3,5]^{14}C-CGA 169374, final report. Unpublished study performed, sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, North Carolina. Syngenta Study No.: T003020-03. Experimental start date August 23, 2004, and termination date August 8, 2005 (initial and final posttreatment sampling intervals, respectively, Table 4, p. 53 in MRID 46950119). Final report issued May 19, 2006.

The biotransformation of [triazolyl-3,5-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole, CGA 169374; radiochemical purity ≥99%) was studied in river water-sand sediment (water pH 7.4, dissolved organic carbon not reported; sediment pH 7.7, organic carbon 0.6%) systems from California for 350 days under anaerobic conditions (nitrogen atmosphere; static with periodic flushing up to *ca.* 4 months posttreatment, then continuous purge thereafter) in darkness at 25 ±

1°C. Based on the water volume, [^{14}C]difenoconazole was applied at a rate of 0.041 mg a.i./L. The sediment:water ratio used was 1:4 (40 g dry wt. sediment:160 mL water). This experiment was conducted in accordance with USEPA Subdivision N Guideline §162-3, and in compliance with USEPA GLP Standards 40 CFR, Part 160. The test system consisted of 250-mL, amber glass bottles connected to a flow-through (humidified nitrogen) volatiles trapping system with traps for the collection of CO_2 (10% KOH) and volatile organics (polyurethane foam plugs). To generate anaerobic conditions, water and sediment were pre-incubated for 14-46 days under a continuous nitrogen-flow atmosphere. Following treatment, duplicate vessels were collected after 0, 1 and 7 hours, and 1, 2, 3, 4, 7, 15, 22, 29, 57, 85, 119, 147, 175, 245, 302 and 350 days of incubation. Conditions in the water layer of the treated systems were primarily strongly reducing during the initial two weeks posttreatment, becoming reducing to moderately reducing thereafter with an average redox potential of -141 ± 130 mV over the 350-day incubation; sediment parameters were not measured. Dissolved oxygen and pH levels in the water layers averaged 0.23 ± 0.31 mg/L and 7.72 ± 0.87, respectively. Difenoconazole dissipated slowly in the total system decreasing from a mean 91.26% of the applied at time 0 to 61.28-61.85% at 245-302 days and was 42.72% at 350 days. Observed DT50 values of difenoconazole were 4-7 days in the water layer and 302-350 days in the sediment and total system. In the water, sediment and total system, calculated linear half-lives (R^2 = 0.8131-0.8602) were 42, 273 and 370 days, respectively, with nonlinear half-lives (r^2 = 0.7910-0.9449) of 10, 289 and 433 days, respectively. Two major transformation products were CGA 7101 and CGA 205375. CGA 71019 was detected at maximum means of 25.62%, 10.30% and 35.92% of the applied in the water layer, sediment and total system, respectively, at study termination. Nonextractable [^{14}C]residues were <1.00% at 0-85 days, increasing to 7.11-8.06% at 302-350 days. Total volatilized $^{14}CO_2$ was detected at <1.0% of the applied at all intervals; no [^{14}C]organic volatiles were detected. This study is classified as supplemental. No significant deviations from good scientific practices or Subdivision N guidelines were noted. However, this study was conducted with [triazolyl-3,5-^{14}C]-labeled difenoconazole and additional studies conducted with difenoconazole labeled in the chlorophenyl or dioxolane ring moieties may be requested.

Aerobic Aquatic metabolism (162-4)

Study MRID 42245134 (Supplemental)

Spare, W. 1989. Aerobic and anaerobic aquatic metabolism of CGA-169374. Agrisearch Project No: 1240. Unpublished study performed by Agrisearch Inc. Fredrick, MD; and submitted by Agricultural Division, CIBA-GEIGY Corp., Greensboro, NC.

Under aerobic conditions, triazole ring labeled [3,5-^{14}C] difenoconazole, at a nominal concentration of 10.0 µg/mL (reviewer calculated), was relatively stable (registrant- calculated half-life was 860 days; r^2 = 0.03) in flooded loam sediment that was incubated in darkness at 25 ± 1 °C for up to 30 days; however, data were variable between sampling intervals. The parent compound was present at 86.8% of the applied radioactivity at 30 days posttreatment. All reported data are the means of two replicates which were both analyzed by two separate TLC systems, unless otherwise reported. In the total sediment/water system, the parent compound was initially

95.6% (single replicates) of the applied radioactivity, decreased to 80.5% by 1 day posttreatment, was 116.4% at 7 days, and decreased with variability to 86.8% by 30 days. In the water phase, the parent compound was initially 95.6% (single replicate; prior to flooding of the sediment) of the applied radioactivity and was 7.9% (reviewer calculated) at 1 day posttreatment, the last sampling interval for which the water phase [^{14}C] residues were characterized. In the sediment phase, the parent compound was 72.6% (reviewer-calculated) of the applied radioactivity at 1 day posttreatment, was 116.4% at 7 days, 83.3% at 7 days, and decreased with variability to 86.8% by 30 days. Non extractable [^{14}C] residues were$\leq$ 6.4%(reviewer-calculated) of the applied radioactivity throughout the incubation period. [^{14}C] Volatiles were not detected during the incubation period; tabular data were not presented. The distribution ratio (reviewer-calculated) of [^{14}C] between sediment and water phases was 7.9:1 at 1 day posttreatment, and 40.0:1 at 30 days.

Study MRID 46950116 (Supplemental)
Gonzalez-Valero, J. 1993. Difenoconazole (CGA-169374): metabolism of CGA-169374 under aerobic conditions in aquatic systems, final report. Unpublished study performed by Ciba-Geigy Limited, Basle, Switzerland; sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, North Carolina. Ciba-Geigy Project No.: 91GJ04 and Report No.: 34/92; Syngenta Report No.: T003277-06 (p. 4). Experimental started September 10, 1991, and terminated November 23, 1992 (p. 12). Final report issued January 20, 1993.

The biotransformation of [chlorophenyl-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole, CGA-169374; radiochemical purity 92.6%) was studied in a pond water-silty clay loam sediment (water pH 7.90, total organic carbon 3.5 mg/L; sediment pH 6.9, organic carbon 6.3%) and a river water-sandy loam sediment (water pH 7.90, total organic carbon 3.0 mg/L; sediment pH 7.2, organic carbon 0.6%) systems from Switzerland for 183 days under aerobic conditions at 20 ± 1°C; light/dark incubation conditions were not specified. Based on the water volume, [^{14}C]difenoconazole was applied at 0.17 mg a.i./L. Sediment:water ratios were *ca.* 1:9 (55 g dry wt. sediment:500 mL water) for the silty clay loam systems, and *ca.* 1:3 (177 g dry wt. sediment:500 mL water) for the sandy loam systems. This experiment was conducted in accordance with USEPA Subdivision N Guideline §162-4, and in compliance with USEPA GLP Standards 40 CFR, Part 160. The test apparatus consisted of incubation vessels connected to a continuous flow-through (humidified air, 60 mL/minute) volatile trapping system with traps for the collection of CO_2 (2N NaOH) and volatile organics (ethylene glycol). Water and sediment were pre-incubated a minimum of 7 days, then, following treatment, a single vessel per system type was collected after 0, 1, 3, 7, 14, 22, 32, 59, 90, 127 and 183 days of incubation. In pond water-silty clay loam systems, redox potentials in the water and sediment averaged +164 ± 23 mV and -115 ± 34 mV, respectively, with dissolved oxygen and pH levels of 7.0 ± 1.2 mg/L and 8.31 ± 0.11, respectively, in the water layer. In river water-sandy loam systems, redox potentials in the water and sediment averaged +177 ± 19 mV and -136 ± 48 mV, respectively, with dissolved oxygen and pH levels of 7.3 ± 1.2 mg/L and 8.29 ± 0.13, respectively, in the water layer. Difenoconazole dissipated slowly in both systems with observed DT50 values of >183 days in the total system; calculated half-lives (see below) are of limited value due to significant extrapolation beyond the

final sampling interval. The first order linear and nonlinear half-lives in the total systems are 335-330 days (r^2 = 0.8659-0.8883) in the pond water-silty clay loam sediment, and 315-301 days (r^2 = 0.9607-0.9625) in the river water-sandy loam sediment. The study author determined half-lives for [^{14}C]difenoconazole of 1.0 day (r^2 = 0.9872) in the water layer and 324 days (R = 0.99841) in the total system for the pond water-silty clay loam sediment and 2.0 days (r^2 = 0.9677) in the water layer and 307 days (R = 0.99946) in the total system for the river water-sandy loam sediment. One transformation product, 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-[12,4]triazol-1-yl-ethanol (CGA-205375, M2), was tentatively identified and detected as a minor product in the pond water-silty clay loam systems, but a major product in the river water-sandy loam systems. $^{14}CO_2$ was a minor volatile product in both systems with maximum totals of 3.0-3.9% at study termination; volatile [^{14}C]organic compounds were <0.1% at all intervals. This study is classified as supplemental. Although the water and sediment were analyzed separately, concentration data for difenoconazole and its transformation products were presented only for the total system. Therefore, the dissipation of difenoconazole from the water and the sediment could not be assessed and concentrations of the transformation products in each medium could not be determined.

Study MRID 46950117 (Supplemental)
Lin, Y. 2006. Difenoconazole (CGA-169374): aerobic aquatic metabolism of [triazolyl-3,5]^{14}C-CGA-169374, final report. Unpublished study performed, sponsored and submitted by Syngenta Crop Protection, Inc., Greensboro, North Carolina. Syngenta Study No.: T003021-03. Experimental start date July 27, 2005, and termination date November 16, 2005 (initial and final posttreatment sampling intervals, respectively, Table 4, p. 53 in MRID 46950117). Final report issued August 17, 2006.

The biotransformation of [triazolyl-3,5-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole, CGA-169374) was studied in river water-loamy sand sediment (water pH 7.9, dissolved organic carbon not reported; sediment pH 7.7, organic carbon 2.8%) systems from California for 112 days under aerobic conditions in darkness at 25 ± 1°C. Based on the water volume, [^{14}C]difenoconazole was applied at a rate of 0.040 mg a.i./L. The sediment:water ratio used was 1:4 (50 g dry wt. sediment:200 mL water). This experiment was conducted in accordance with USEPA Subdivision N Guideline §162-4, and in compliance with USEPA GLP Standards 40 CFR, Part 160. The test apparatus consisted of incubation vessels connected to a continuous flow-through (humidified air, flow rate not reported) system with traps for the collection of CO_2 (10% KOH) and volatile organics (polyurethane foam plugs). Water and sediment were pre-incubated for 9 days, then, following treatment, duplicate vessels were collected after 0, 2, 5, 7, 14, 28, 47, 70, 84, 98 and 112 days of incubation. Conditions in the water layer of the treated systems were moderately reducing up to 84 days posttreatment, becoming moderately oxidizing thereafter with redox potentials averaging +168 ± 105 mV overall; sediment parameters were not measured. Dissolved oxygen and pH levels in the water layers averaged 6.03 ± 1.54 mg/L and 7.98 ± 0.30, respectively. Overall recovery of radiolabeled material averaged 96.40 ± 3.03% (range 92.03-103.21%) of the applied, with no pattern of decline in recoveries over the 112-day study. Difenoconazole dissipated slowly in the total system comprising a mean 81.53% of the applied at

study termination. However, dissipation of [^{14}C]difenoconazole from the water layer was rapid, observed DT50 values of difenoconazole were <2 days in the water layer, and >112 days in the sediment and total system. Calculated half-life for difenoconazole in the sediment was not determined due to insufficient dissipation. In the total system, calculated linear (R^2 = 0.6756) half-life was 565 days, determined for the modeling purpose. In the water, calculated nonlinear (R^2 = 0.9915) and linear (R^2 = 0.7516) half-lives were 2 and 6 days, respectively. This study is classified as supplemental. This study was conducted with [triazolyl-3,5-^{14}C]-labeled difenoconazole. An additional study (MRID 46950116) was conducted using difenoconazole labeled in the chlorophenyl ring. An additional study conducted with difenoconazole labeled in the dioxolane ring moiety may be requested.

3. Mobility

Leaching and Adsorption Desorption Studies 163-1

Study MRID 42245135 (Supplemental)
Atkins, R. H. 1991. Soil adsorption/desorption of [^{14}C]CGA-169374 by the batch equilibrium method. PTRL Project No.: 495. CIBA-GEIGY Study No.: 114-90. Unpublished study performed by PTRL East, Inc., Richmond, KY; and submitted by CIBA-GEIGY Corporation, Greensboro, NC.

Triazole ring-labeled [3,5-^{14}C]difenoconazole (MRID 42245135), at nominal concentrations of 0.1, 0.2, 0.4, 0.7, and 1.0 ppm, was studied in sand, sandy loam, silt loam, and silty clay loam soil:solution slurries that were equilibrated for 24 hours in darkness at 25 ± 0.0□C. Freundlich K_{ads} values were 12.8 for the sand soil (0.62% o.m.), 63.0 for the sandy loam soil (3.4% o.m.), 54.8 for the silt loam soil, and 47.2 for the silty clay loam soil; corresponding K_{oc} values were 3867, 3518, 3471, and 7734 mL/g. Respective 1/N values (reviewer-calculated) were 0.74, 0.76, 0.85, and 0.91 for adsorption. Freundlich K_{des} values determined following a 24-hour equilibration period were 18.6 for the sand soil, 95.2 for the sandy loam soil, 57.2 for the silt loam soil, and 71.4 for the silty clay loam soil; corresponding K_{oc} values were 5624, 5320, 3620, and 11700 mL/g. Respective 1/N values (reviewer-calculated) were 0.75, 0.80, 0.76, and 0.93 for desorption. The reviewer-calculated coefficients of determination (r^2) for the relationships K_{ads} *vs.* organic matter, K_{ads} *vs.* pH, and K_{ads} *vs.* clay content were 0.74, 0.18, and 0.21, respectively.

Study MRID 42245136 (Supplemental)
Spare, W. C. 1988. Adsorption/desorption of ^{14}C-CGA-169374. Agrisearch Project No.: 12115. Unpublished study performed by Agrisearch Incorporated, Frederick, MD; and submitted by CIBA-GEIGY Corporation, Greensboro, NC.

Triazole ring-labeled [3,5-^{14}C]difenoconazole (MRID 42245136), at nominal concentrations of 0.02, 0.05, 0.1, 0.5 and 1.0 µg/mL, was studied in autoclave sterilized clay, sand, silt loam, and sandy loam soil:solution slurries that were equilibrated for 8 hours at 25 ± 1□C. Freundlich K_{ads}

values were 97.9 for the clay soil (4.8% o.m.), 2.1 for the sand soil (0.9% o.m.), 35.0 for the silt loam soil, and 11.5 for the sandy loam soil; corresponding K_{oc} values were 3466, 400, 5663, and 1956 mL/g. Respective 1/N values (reviewer-calculated) were 0.89, 0.80, 0.88, and 0.94 for adsorption. Freundlich K_{des} values determined following a 8-hour equilibration period were 119.1 for the clay soil, 4.2 for the sand soil, 66.7 for the silt loam soil, and 17.3 for the sandy loam soil; corresponding K_{oc} values were 4217, 790, 10792, and 2939 mL/g. Respective 1/N values (reviewer-calculated) were 0.86, 0.85, 0.89, and 0.94 for desorption. The reviewer-calculated coefficients of determination (r^2) for the relationships K_{ads} *vs.* organic matter, K_{ads} *vs.* pH, and K_{ads} *vs.* clay content were 0.91, 0.36, and 0.93, respectively.

Study MRID 46950121 (Acceptable)
Adam, D. 2006. Adsorption/desorption of [triazolyl-3-5]^{14}C-CGA169374 on four soils. Unpublished study performed by RCC Ltd. Environmental Chemistry & Pharmanalytics, Itingen, Switzerland; and sponsored and submitted by Syngenta Crop Protection Inc., Greensboro, NC. RCC Number A01157. Syngenta Number T003022-03. Experimental start date June 21, 2005, and completion date September 16, 2005 (p. 12). Final report issued January 23, 2006.

The adsorption/desorption characteristics of [triazolyl-3-5-^{14}C]-labeled 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1*H*-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (difenoconazole; CGA169374) were studied in a loamy sand soil [pH 6.8, organic carbon 0.3%] and a sandy loam soil [pH 6.1, organic carbon 0.5%], each from California, a clay loam soil [pH 7.9, organic carbon 3.8%] from North Dakota, and a sand soil [pH 5.5, organic carbon 1.8%] from Florida, in a batch equilibrium experiment. The experiment was conducted in accordance with USEPA Subdivision N, Chemistry: Environmental Fate, Section 163-1: Leaching and Adsorption/Desorption Studies. This study was conducted in compliance with the Swiss Ordinance relating to Good Laboratory Practice. The adsorption phase of the study was carried out by equilibrating air-dried soil with [^{14}C]difenoconazole at nominal test concentrations of 0.1, 0.5, 1, 3.75, and 10 mg a.i./kg soil (loamy sand and sandy loam) and 0.4, 2, 4, 15, and 40 mg a.i./kg soil (clay loam and sand) in the dark at 25°C for 48 hours. The equilibrating solution used was 0.01M $CaCl_2$ solution with a soil solution ratio of 1:25 (w:v; loamy sand and sandy loam soils) and 1:100 (w:v; clay loam and sand soils). All samples were prepared in duplicate. The desorption phase of the study was carried out by replacing the adsorption solution with an equivalent volume of 0.01M $CaCl_2$ solution and equilibrating in the dark at 25°C for 48 hours. A single desorption step was performed for all test soils. Freundlich adsorption K values were 11.611, 22.936, 182.351, and 201.644 for the Madera loamy sand, Visalia sandy loam, North Dakota clay loam, and Florida sand soils, respectively; corresponding Freundlich K_{oc} values were 3870, 4587, 4799, and 11202. Freundlich desorption K values were 13.528, 27.971, 171.683, and 224.330 for the Madera loamy sand, Visalia sandy loam, North Dakota clay loam, and Florida sand soils, respectively; corresponding Freundlich desorption K_{oc} values were 4509, 5594, 4518, and 12463. This study is classified as acceptable. No significant deviations from good scientific practices were noted.

Study MRID 46950123 (Supplemental)
Adam, D. 2006. Adsorption/desorption of [triazolyl-3-5]^{14}C-CGA205375 on four soils. Unpublished study performed by RCC Ltd. Environmental Chemistry & Pharmanalytics, Itingen, Switzerland; and sponsored and submitted by Syngenta Crop Protection Inc., Greensboro, NC. RCC Number A01168. Syngenta Number T003023-03. Experimental start date July 8, 2005 and completion date September 16, 2005 (p. 11). Final report issued January 23, 2006.

The adsorption/desorption characteristics of [triazolyl-3-5]^{14}C-labeled 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-1,2,4-triazol-1-yl-ethanol (CGA205375) were studied in a loamy sand soil [pH 6.8, organic carbon 0.3%] and a sandy loam soil [pH 6.1, organic carbon 0.5%], each from California, a clay loam soil [pH 7.9, organic carbon 3.8%] from North Dakota, and a sand soil [pH 5.5, organic carbon 1.8%] from Florida, in a batch equilibrium experiment. The experiment was conducted in accordance with USEPA Subdivision N, Chemistry: Environmental Fate, Section 163-1: Leaching and Adsorption/Desorption Studies. This study was conducted in compliance with the Swiss Ordinance relating to Good Laboratory Practice. The adsorption phase of the study was carried out by equilibrating air-dried soil with [^{14}C]CGA205375 at nominal test concentrations of 0.0625, 0.25, 0.625, 2.5, and 6.25 mg a.i./kg soil (loamy sand and sandy loam) and 0.5, 2, 5, 20, and 50 mg a.i./kg soil (clay loam and sand) in the dark at 25°C for 48 hours. The equilibrating solution used was 0.01M $CaCl_2$ solution with a soil solution ratio of 1:12.5 (w:v; loamy sand and sandy loam soils) and 1:100 (w:v; clay loam and sand soils). All samples were prepared in duplicate. The desorption phase of the study was carried out by replacing the adsorption solution with an equivalent volume of 0.01M $CaCl_2$ solution and equilibrating in the dark at 25°C for 48 hours. A single desorption step was performed for each test soil. Freundlich adsorption K values were 9.643, 12.349, 145.320, and 115.771 for the Madera loamy sand, Visalia sandy loam, North Dakota clay loam, and Florida sand soils, respectively; corresponding Freundlich K_{oc} values were 3214, 2470, 3824, and 6432. Freundlich desorption K values were 12.339, 14.535, 220.337, and 186.878 for the Madera loamy sand, Visalia sandy loam, North Dakota clay loam, and Florida sand soils, respectively; corresponding Freundlich desorption K_{oc} values were 4113, 2907, 5798, and 10382. This study is classified as supplemental for registration purpose of difenoconazole. The study was conducted using a transformation product of difenoconazole, its major degradate, CGA205375. No significant deviations from good scientific practices were noted.

Laboratory Volatility from Soil (163-2)
Waived

Field Volatility (163-3)

4. Dissipation

Terrestrial Field Dissipation Studies 164-1

Study MRID 42245140 (Supplemental)
Kimmel, E. C. 1992. Mobility and dissipation of [^{14}C-Phenyl]-CGA-169374 under actual field conditions. PTRL-West Project No.: 111W. Unpublished study performed by PTRL-West, Inc., Richmond, CA; and submitted by CIBA-GEIGY Corporation, Greensboro, NC.

Uniformly phenyl ring-labeled [^{14}C]difenoconazole (CGA-169374), applied at a nominal application rate of 51.8 g a.i./A (0.41 mg/lysimeter) to lysimeter-enclosed bareground plots of loamy sand soil in Reedley, California, dissipated with a registrant-calculated half-life of 252 days ($r^2 = 0.91$); however, the observed first half-life occurred between 93 and 182 days posttreatment. The half-life was determined from the parent detected in the 0- to 3-inch depth rather than the top 6 inches. Data are reported as percentages of the nominal application and are reviewer-calculated means of methanol:water plus oxalic acid:DMF extractions. Residue data were only reported for the 0- to 3-inch depth. The parent was initially 82.4% (0.1 ppm) of the applied radioactivity in the 0- to 3-inch depth, decreased to 49.7% (0.072 ppm) by 93 days posttreatment, and was 25.7% (0.03 ppm) at 363 days. Degradate data are reported in parent equivalents. The minor degradate CGA-190978 was a maximum of 1.3% (0.001 ppm; methanol:water extraction only) of the applied radioactivity at 61 days posttreatment and was 0.59% (0.001 ppm) at 363 days. The minor degradate CGA-189138 was a maximum of 2.7% (0.003 ppm) of the applied radioactivity at 61 days posttreatment and was 1.7% (0.002 ppm) at 363 days. The minor degradate CGA-205374 was a maximum of 3.3% (0.003 ppm; methanol:water extraction only) of the applied radioactivity at time 0 and was 1.2% (0.001 ppm) at 363 days. The minor degradate CGA-205375 was a maximum of 6.9% (0.009 ppm) of the applied radioactivity at 182 days posttreatment and was 6.6% (0.008 ppm) at 363 days. [^{14}C]Residues were not characterized below the 0- to 3-inch depth. In the 3- to 6-inch depth, total [^{14}C]residues were initially 0.56% (0.001 ppm) of the applied radioactivity at 7 days posttreatment, increased to a maximum of 5.1% (0.005 ppm) by 272 days, and were 2.5% (0.003 ppm) at 363 days. In the 6- to 9-inch depth, total [^{14}C]residues were ≤0.94% (0.001 ppm) of the applied radioactivity from 14 to 363 days posttreatment. In the 9- to 12-inch depth, total [^{14}C]residues were 0.26-0.47% (0.0003-0.0004 ppm) of the applied radioactivity from 182 to 363 days posttreatment. In the 12- to 18-inch depth, total [^{14}C]residues were 0.30-1.3% (0.0001-0.0006 ppm) of the applied radioactivity from 182 to 363 days posttreatment. Total [^{14}C]residues detected in the leachate were 0.36% of the applied radioactivity throughout the study period.

Study MRID 46950126 (Acceptable)
Wiepke, T., B. Jacobson, S. Nelson and R. Gottchalk. 2006. Difenoconazole (CGA-169374) 250 EC: Dissipation of difenoconazole in a bare soil plot under simulated fall squash production conditions in Georgia. Final report. Unpublished study performed by Waterborne Environmental, Inc., Leesburg, VA (field management); **Research Options, Inc., Montezuma, GA (field cooperator; Appendix I, p. 34)** and Enviro-Test Laboratories, Edmonton, Alberta, Canada (analytical phase), and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. Syngenta No.: T002985-03. Waterborne No.: 242.80. Enviro-Test No.: 06SYN174.REP. Experiment initiation October 6, 2004 (first test application) and completion June 27, 2006 (final analysis date for soil samples; Appendix 2, p. 150). Final report issued July 18, 2006.

Soil dissipation/accumulation of difenoconazole (CGA-169374; 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether) under US field conditions was conducted in a bare plot of loamy sand soil at one site in Georgia. Difenoconazole was broadcast four times (7-day intervals) at a target rate of 0.15 kg a.i./ha (0.13 lb a.i./A) to a 23 x 16 m test plot divided into three replicate areas. The applied rate corresponds to 110% of the maximum application rate for a single application (0.115 lb a.i./A). The applications were made to approximate the timing on a fall squash crop in Georgia (approximately 21 days before the start of harvest). Total water input during the study period was 104.55 inches or 147% of the 30-year historical average precipitation. A control plot was located 32 m from the treated plot. The application rate was verified for each application of difenoconazole with mean recovery of 110%, 95%, 103%, and 107% of the theoretical for the first, second, third, and fourth applications, respectively. Soil samples were collected at 0, 2, and 6 days following the first, second, and third applications and at 0, 2, 7, 14, 21, 28, 35, 44, 62, 91, 121, 154, 180, 314, 358, 446, and 531 days following the fourth application to a depth of 0-90 cm (excluding application 1, day-0 samples which were collected to a depth of 15 cm). Following the fourth application, difenoconazole was detected in the 0-15 cm soil depth at 161 ppb at day 0, varied from 102 to 189 ppb from 3 to 121 days, decreased to 50-69 ppb by 180-358 days, and was 44 ppb at 531 days posttreatment. Difenoconazole was only detected in the 15-30 cm soil depth twice, at 1.3-1.8 ppb (single replicate detections) at 44 and 121 days following the fourth application, and was not detected in any other depths. Difenoconazole dissipated with a half-life value of 231 days (r^2 = 0.6234) in the soil. The only transformation product detected in the soil at a mean concentration >LOQ was CGA-205375 in the 0-15 cm soil depth at a maximum of 12 ppb at 121 days posttreatment of the fourth application (4.5% of the total applied difenoconazole, based on four applications), and decreased to 6.1 ppb by 531 days posttreatment. This study is classified acceptable. No significant deviations from good scientific practices were noted.

Study MRID 46950127 (Acceptable)
Wiepke, T., B. Jacobson, S. Nelson and R. Gottschalk. 2006. Difenoconazole (CGA-169374) 250EC: Dissipation of difenoconazole in a bare soil plot under simulated tomato production conditions in the central valley of California. Final report. Unpublished study performed by Waterborne Environmental, Inc., Leesburg, VA (field management); **Research for Hire, Porterville, CA (field cooperator; Appendix I, p. 35)** and Enviro-Test Laboratories, Edmonton, Alberta, Canada (analytical phase), and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. Syngenta No.: T002984-03. Waterborne No.: 242.77. Enviro-Test No.: 06SYN173.REP. Experiment initiation September 10, 2004 (first test application) and completion July 10, 2006 (final analysis date for soil samples; Appendix 2, p. 148). Final report issued July 26, 2006.

Soil dissipation/accumulation of difenoconazole (CGA-169374; 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether) under US field conditions was conducted in a bare plot of loam soil at one site in California. Difenoconazole was broadcast four times (7-day intervals) at a target rate of 0.15 kg a.i./ha (0.13 lb a.i./A) to a 93 x 6 m test plot divided into five replicate areas. The applied rate corresponds to

110% of the maximum application rate for a single application (0.115 lb a.i./A). The applications were made to approximate the timing on fresh market or late season processing tomatoes in the Central Valley of California (approximately 21 days before start of harvest). Total water input during the study period was 90.94 inches or 441% of the 30-year historical average precipitation. A control plot was located 329 m from the treated plot. Difenoconazole application rate was verified for each application and was 110%, 99%, 102%, and 107% of the theoretical for the first, second, third, and fourth applications, respectively. Soil samples were collected at 0, 3, and 6 days following the first, second, and third applications and at 0, 3, 7, 14, 21, 28, 35, 45, 60, 95, 123, 148, 180, 270, 356, 446, and 535 days following the fourth application to a depth of 0-90 cm (excluding application 1, day-0 samples which were collected to a depth of 15 cm). Following the fourth application, difenoconazole was detected in the 0-15 cm soil depth at 171 ppb at day 0, increased to a maximum of 193 ppb by 3 days, varied from 86 to 148 ppb from 7 to 180 days, decreased to 30 ppb by 270 days, and was 13-16 ppb from 356 to 535 days posttreatment. Difenoconazole was initially detected in the 15-30 cm soil depth at 1.4 ppb (single replicate detection) at 3 days following the first application, was a maximum of 4.8 ppb at 3 days following the third application, and was not detected below the 0-15 cm depth following 95 days posttreatment of the fourth application. Difenoconazole had a half-life value of 139 days in soil (r^2 = 0.8156). The only transformation product detected in the soil at a mean concentration >LOQ was CGA-205375, which was detected in the 0-15 cm soil depth at a maximum of 12 ppb at 123 days posttreatment of the fourth application (3.5% of the total applied difenoconazole, based on four applications), and decreased to 5.6 ppb by 535 days posttreatment. This study is classified as acceptable. No significant deviations from good scientific practices were noted, however, the routes of dissipation of difenoconazole were not determined.

Study MRID 46950129 (Supplemental)
Wiepke, T., B. Jacobson, S. Nelson and R. Gottschalk. 2006. Difenoconazole (CGA-169374) 250 EC: Dissipation of difenoconazole in soil under potato production conditions and in a bare soil plot in North Dakota. Final report. Unpublished study performed by Waterborne Environmental, Inc., Leesburg, VA (field management); **Agvise Research, Inc., Northwood, ND (field cooperator; Appendix 1, p. 45)** and Enviro-Test Laboratories, Edmonton, Alberta, Canada (analytical phase), and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. Syngenta No.: T002983-03. Waterborne No.: 242.75. Enviro-Test No.: 06SYN169.REP. Experiment initiation August 11, 2004 (first test application) and completion August 1, 2006 (final analysis date for soil samples; Appendix 2, p. 171). Final report issued August 8, 2006.

Soil dissipation/accumulation of difenoconazole (CGA-169374; 3-chloro-4-[(2RS,4RS;2RS,4SR)-4-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether) under US field conditions was conducted in a bare ground plot and a potato cropped plot of sandy clay loam soil at one site in North Dakota. The experiment was carried out in accordance with the USEPA Pesticide Assessment Guidelines Subdivision N, 164-1, and in compliance with the USEPA FIFRA (40 CFR, Part 160) GLP standard. Difenoconazole was broadcast four times (6- to 8-day intervals) at a target rate of 0.15 kg a.i./ha (0.13 lb a.i./A) to one bare ground and one cropped 37 x 29 m test plot, each divided into three replicate areas. The estimated percent ground

coverage in the potato plot was 85-90% for all four applications; the potato stage was 70% bulking at the first application and 90% bulking at the fourth application. The potato crop was sprayed with the plant desiccant diquat six days after the fourth application to kill the crop in preparation for harvest at 29 days following the fourth application. The applied rate corresponds to 110% of the maximum application rate for a single application (0.115 lb a.i./A). The applications were made to approximate the timing on a potato crop in North Dakota (approximately 1 month before start of harvest). Total water input during the study period was 37.17 inches or 144% of the 30-year historical average precipitation. A control plot was located approximately 15 m from the treated plots.

The application rate was verified in both test plots. Mean recovery of difenoconazole in the bare ground plot was 126%, 104%, 118%, and 133% of the theoretical for the first, second, third, and fourth applications, respectively, with corresponding recoveries from the cropped plot of 103%, 102%, 115%, and 127%. Soil samples were collected from the bare ground and cropped plots at 0, 2, and 5-6 days following the first, second, and third applications and at 0, 2, 7, 15, 28, 36, 47, 62, 237, 272, 364, and 442 days following the fourth application to a depth of 0-90 cm (excluding application 1, day-0 samples which were collected to a depth of 15 cm).

In the bare ground plot, difenoconazole was only detected in the 15-30 cm soil depth sporadically, with a maximum concentration of 18 ppb (mean of two detections) at 36 days posttreatment, and was not detected at any other depths. Under field conditions in the bare ground plot, difenoconazole had dissipated with a half-life value of 462 days in soil ($r^2 = 0.1126$, in 0-15 cm soil depth). The only transformation products detected in the soil at a mean concentration >LOQ were CGA-205375 and CGA-71019, at the 0-15 cm soil depth at maximums of 5.6 ppb and 2.6 ppb, respectively.

In the cropped plot, difenoconazole was detected in the 15-30 cm soil depth at replicate detections up to 11 ppb from the day of the second application through the end of the study period, and was detected in the 30-45 cm soil depth at replicate detections up to 7.8 ppb from 7 to 62 days and at 422 days posttreatment. The only transformation products detected in the soil at a mean concentration >LOQ were CGA-205375 and CGA-71019. CGA-205375 was detected in the 0-15 cm soil depth at a maximum of 18 ppb at 364 days. CGA-71019 was detected sporadically in the 0-15 and 15-30 cm soil depths at up to 3.5 ppb and 1.5 ppb, respectively. A half-life could not be calculated for difenoconazole under field conditions in the cropped plot because difenoconazole had not dissipated to <50% of the day-0 recovery by the end of the study period, and due to variability within the data set between replicates and over time.

This study is classified as supplemental. No significant deviations from good scientific practices were noted, however, a valid dissipation half-life under cropped plot conditions could not be calculated due to lack of dissipation over time. Field data indicate increase in residue concentrations with increased time after application, the average concentration at the time of fourth application was lower than at the average concentration toward the end of the study.

Study MRID 46950130 (Supplemental), NG Storage Stability Study
Wiepke, T., R.M. Speth, R. Gottschalk and S. Nelson. 2006. Difenoconazole: Stability of difenoconazole, CGA-205375, CGA-71019 and CGA-142856 in soil under freezer storage conditions. Final report. Unpublished study performed by Enviro-Test Laboratories, Edmonton, Alberta, Canada and submitted by Syngenta Crop Protection, Inc., Greensboro, NC. ETL Report No.: 06SYN175.REP. Syngenta No.: T008845-03. Study initiation December 27, 2004 and completion July 24, 2006 (p. 10). Final report issued July 24, 2006.

The stability of difenoconazole and its transformation products CGA-205375 (alpha-[2-chloro-4-(4-chlorophenoxy)phenyl]-1H-1,2,4-triazole-1-ethanol), CGA-71019 (1H-1,2,4-triazole), and CGA-142856 (1H-1,2,4-triazole-1-acetic acid) was determined in soils obtained from three terrestrial field dissipation field sites in North Dakota, California, and Georgia (0-15 cm depth). For each test site soil, soil samples were fortified to a level of 10 ppb with difenoconazole, CGA-205375, CGA-71019, and CGA-142856. Duplicate fortified samples were removed from freezer storage for analysis on day 0 and at approximately 1, 3, 6, 9, 12, and 15 months. Storage stability results indicate that difenoconazole and the transformation products CGA-205375, CGA-71019, and CGA-142856 were stable in all three tests soils for the duration of the study period.
This study is classified as acceptable. The stability study was intended to provide support for the terrestrial field dissipation studies conducted in North Dakota (MRID 48950129), California (MRID 48950127), and Georgia (MRID 48950126). No significant deviations from good scientific practices were noted.

5. Accumulation

Laboratory Accumulation in Fish: 165-4 (Satisfied)
Study MRID 42245142
Fackler, P.H. 1991. Bioconcentration and elimination of [^{14}C]-residues by Bluegill (Lepomis macrochirus) exposed to CGA-169374. Laboratory Project ID #1781.0387.6139.140. Unpublished study performed by Springborn Laboratories Inc., Ciba-Geigy Corp., and Battelle and submitted by Ciba-Geigy, Greensboro, NC.

[^{14}C]Difenoconazole accumulated rapidly in edible and non-edible bluegill sunfish tissues with bioconcentration factors of 170x for edible tissues, 570x for nonedible tissues, and 330x for whole body. Depuration was also rapid with a depuration half-life of approximately 1 day and 96-98% clearance after 14 days of depuration. One main metabolite, CGA-205375, was recovered from both the edible and non-edible tissues and accounted for 51-64% of the applied radioactivity. There were up to 9 minor metabolites which were not identified.

There are potentially up to 9 unidentified degradates associated with fish tissues. In the edible tissues the residues ranged from 0.012 to 0.022 ppm and in the nonedible tissues the residues ranged from 0.014 to 0.74 ppm. Due to use pattern of difenoconazole as a seed treatment, the low amounts of accumulation in fish tissues, and the rapid depuration of difenoconazole, at this time EFED does not consider that these degradates will be of environmental concern. If degradates of

difenoconazole are found to be of toxicological concern, these fish tissue metabolites should be further investigated.

APPENDIX C: Outdoor Nursery Acerage Maps

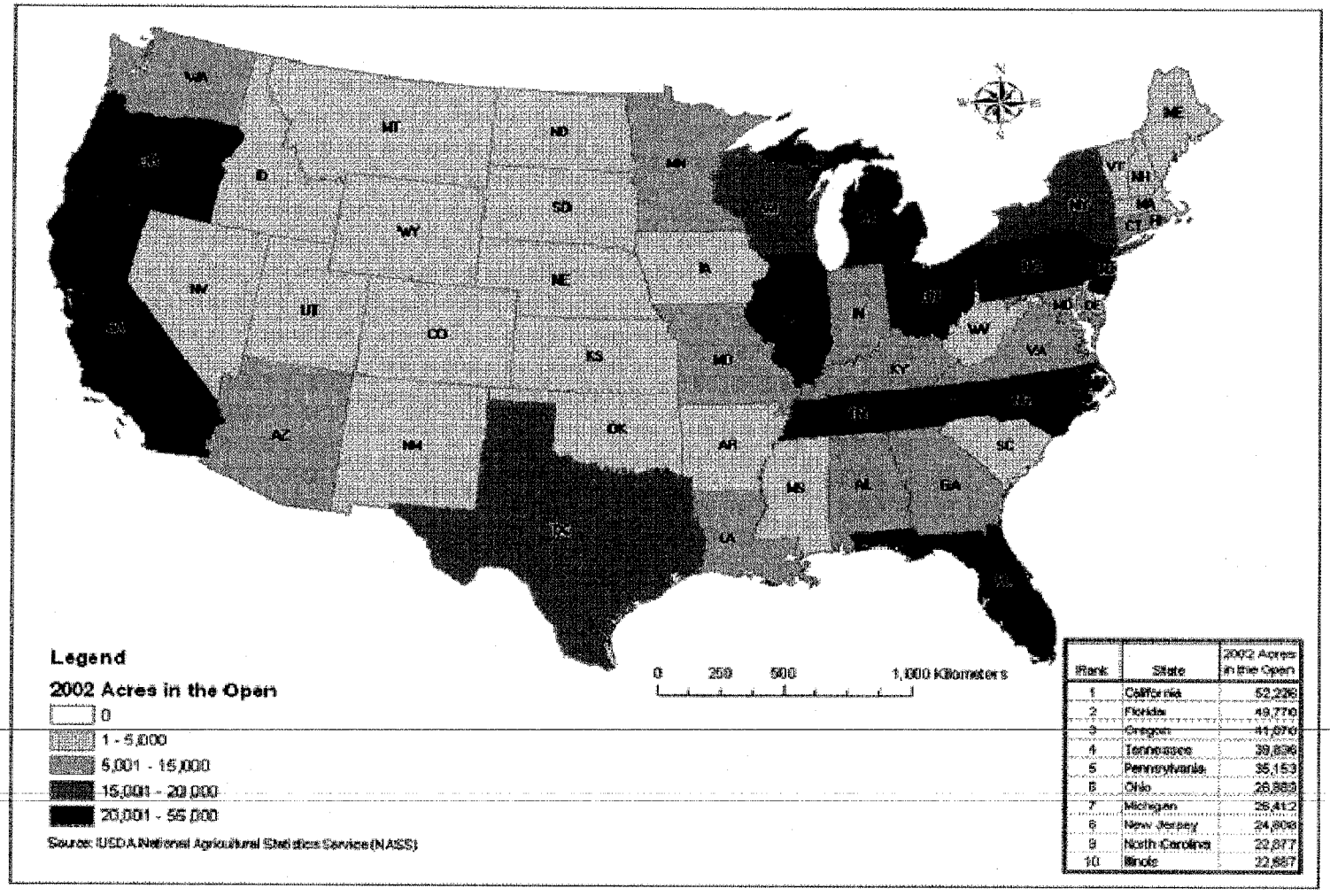
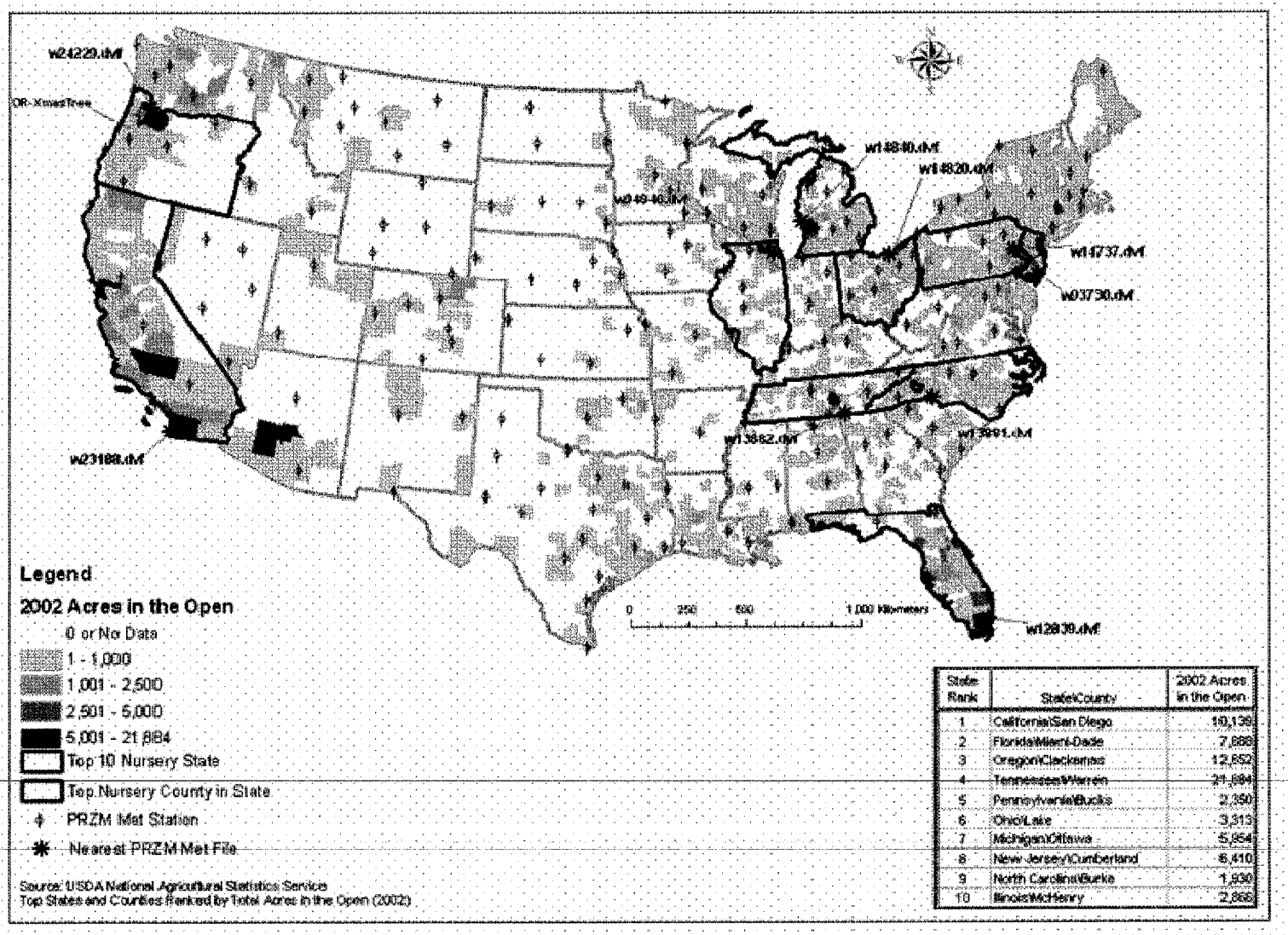


Figure 2. Outdoor Nursery Acreage in the Conterminous US.



State Rank	State\County	2002 Acres in the Open
1	California\San Diego	10,139
2	Florida\Miami-Dade	7,888
3	Oregon\Clackamas	12,852
4	Tennessee\Warren	21,884
5	Pennsylvania\Bucks	2,350
6	Ohio\Lake	3,313
7	Michigan\Ottawa	5,954
8	New Jersey\Cumberland	8,410
9	North Carolina\Burke	1,930
10	Illinois\McHenry	2,866

Figure 3. County Level Outdoor Nursery Acreage, Top 10 Nursery States, and Top Nursery Counties, including nearest PRZM Meteorological File.

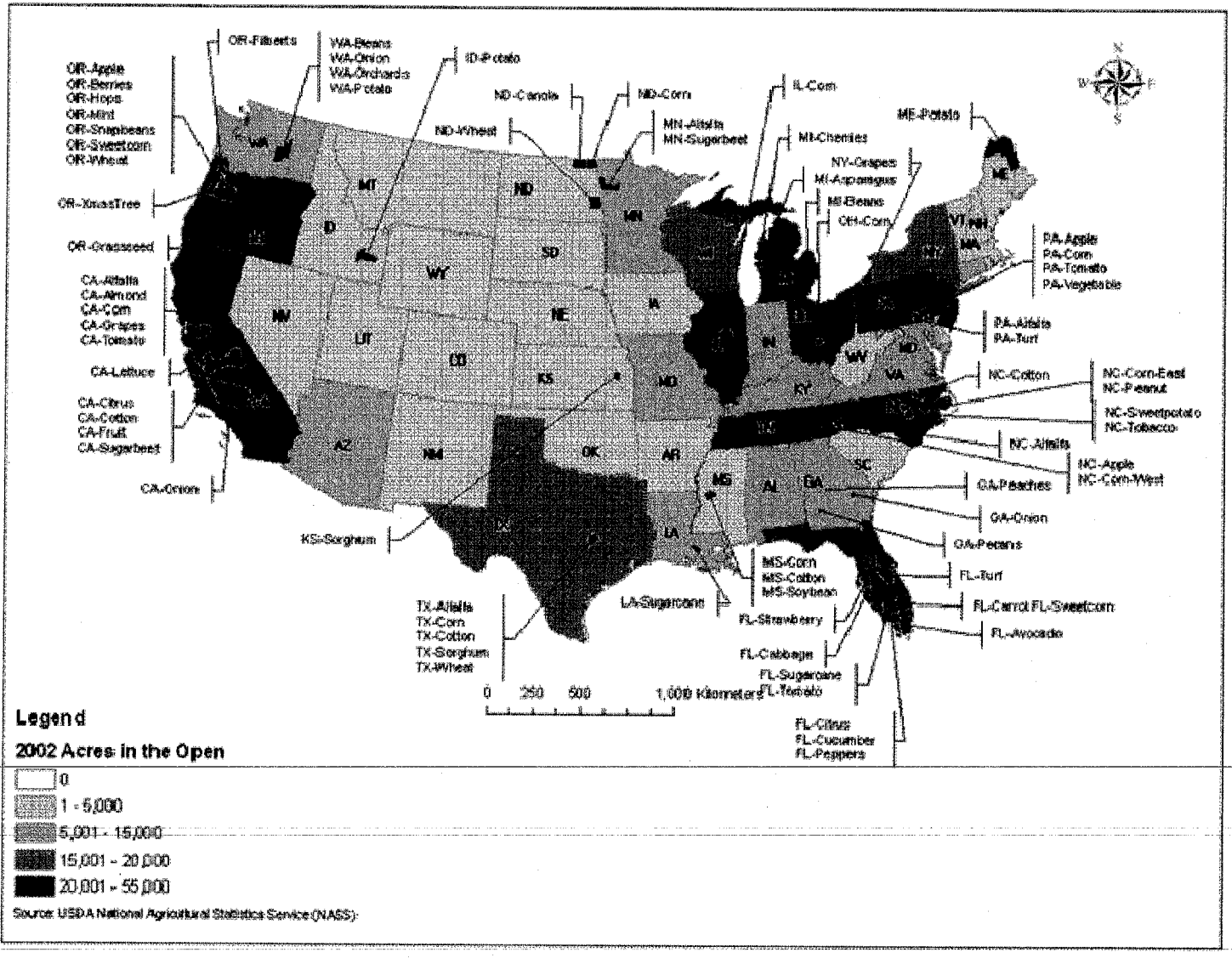


Figure 4. Outdoor Nursery Acreage and Available Standard and Organophosphate PRZM Scenarios.

APPENDIX D: PRZM/EXAMS Modleing Output Files

Aerial Application to PA Apples:

stored as difenoPAapplePondAir.out
Chemical: difenoconazole
PRZM environment: PAappleC.txt modified Satday, 12 October 2002 at 16:24:46
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14737.dvf modified Wedday, 3 July 2002 at 09:06:12
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.555	1.34	1.02	0.7179	0.6461	0.3157
1962	2.127	1.905	1.416	1.18	1.163	0.8852
1963	1.997	1.872	1.63	1.487	1.472	1.247
1964	1.891	1.83	1.703	1.671	1.65	1.531
1965	1.967	1.912	1.841	1.779	1.76	1.671
1966	2.228	2.149	2.08	2.004	1.983	1.845
1967	4.11	3.803	3.216	2.845	2.752	2.354
1968	4.909	4.559	3.828	3.343	3.219	2.835
1969	4.69	4.406	3.837	3.434	3.336	3.055
1970	3.677	3.584	3.431	3.287	3.267	3.194
1971	4.119	3.99	3.733	3.646	3.593	3.407
1972	5.786	5.431	4.707	4.552	4.402	3.903
1973	5.688	5.433	4.941	4.763	4.658	4.315
1974	5.295	5.133	4.903	4.733	4.675	4.509
1975	5.407	5.266	5	4.835	4.784	4.604
1976	5.399	5.268	4.886	4.68	4.637	4.546
1977	5.102	4.997	4.756	4.669	4.634	4.498
1978	5.37	5.228	5.048	4.788	4.734	4.543
1979	6.033	5.883	5.359	5.009	4.958	4.71
1980	5.006	4.935	4.893	4.781	4.723	4.536
1981	5.297	5.131	4.98	4.756	4.659	4.392
1982	6.544	6.215	5.63	5.289	5.241	4.714
1983	5.346	5.246	5.025	4.945	4.908	4.748
1984	6.956	6.612	5.849	5.513	5.389	4.927
1985	5.972	5.781	5.361	5.134	5.1	4.982
1986	5.635	5.541	5.319	5.14	5.073	4.928
1987	5.781	5.615	5.259	5.1	5.036	4.874
1988	7.278	6.892	6.124	5.562	5.477	5.081
1989	5.914	5.811	5.695	5.618	5.533	5.204
1990	7.159	6.841	6.128	5.741	5.686	5.336

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	7.278	6.892	6.128	5.741	5.686	5.336
0.0645161290322581	7.159	6.841	6.124	5.618	5.533	5.204
0.0967741935483871	6.956	6.612	5.849	5.562	5.477	5.081
0.129032258064516	6.544	6.215	5.695	5.513	5.389	4.982
0.161290322580645	6.033	5.883	5.63	5.289	5.241	4.928
0.193548387096774	5.972	5.811	5.361	5.14	5.1	4.927
0.225806451612903	5.914	5.781	5.359	5.134	5.073	4.874
0.258064516129032	5.786	5.615	5.319	5.1	5.036	4.748
0.290322580645161	5.781	5.541	5.259	5.009	4.958	4.714
0.32258064516129	5.688	5.433	5.048	4.945	4.908	4.71
0.354838709677419	5.635	5.431	5.025	4.835	4.784	4.604
0.387096774193548	5.407	5.268	5	4.788	4.734	4.546
0.419354838709677	5.399	5.266	4.98	4.781	4.723	4.543
0.451612903225806	5.37	5.246	4.941	4.763	4.675	4.536
0.483870967741936	5.346	5.228	4.903	4.756	4.659	4.509
0.516129032258065	5.297	5.133	4.893	4.733	4.658	4.498
0.548387096774194	5.295	5.131	4.886	4.68	4.637	4.392
0.580645161290323	5.102	4.997	4.756	4.669	4.634	4.315
0.612903225806452	5.006	4.935	4.707	4.552	4.402	3.903

0.645161290322581	4.909	4.559	3.837	3.646	3.593	3.407
0.67741935483871	4.69	4.406	3.828	3.434	3.336	3.194
0.709677419354839	4.119	3.99	3.733	3.343	3.267	3.055
0.741935483870968	4.11	3.803	3.431	3.287	3.219	2.835
0.774193548387097	3.677	3.584	3.216	2.845	2.752	2.354
0.806451612903226	2.228	2.149	2.08	2.004	1.983	1.845
0.838709677419355	2.127	1.912	1.841	1.779	1.76	1.671
0.870967741935484	1.997	1.905	1.703	1.671	1.65	1.531
0.903225806451613	1.967	1.872	1.63	1.487	1.472	1.247
0.935483870967742	1.891	1.83	1.416	1.18	1.163	0.8852
0.967741935483871	1.555	1.34	1.02	0.7179	0.6461	0.3157
0.1	6.9148	6.5723	5.8336	5.5571	5.4682	5.0711
				Average of yearly averages:		3.72299666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoPAapplePondAir
Metfile: w14737.dvf
PRZM scenario: PAappleC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.08	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	27-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Interval 4 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Airblast Application to PA Apples:

stored as difenoPAapplePondGr.out
Chemical: difenoconazole
PRZM environment: PAappleC.txt modified Satday, 12 October 2002 at 16:24:46
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14737.dvf modified Wedday, 3 July 2002 at 09:06:12
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.518	1.294	0.9617	0.6479	0.5739	0.247

1962	1.996	1.77	1.272	1.035	1.019	0.7498
1963	1.816	1.686	1.435	1.287	1.273	1.046
1964	1.595	1.537	1.406	1.35	1.324	1.27
1965	1.651	1.594	1.521	1.46	1.441	1.351
1966	1.867	1.791	1.722	1.64	1.621	1.477
1967	3.741	3.425	2.824	2.448	2.355	1.955
1968	4.386	4.051	3.341	2.886	2.771	2.41
1969	4.291	3.996	3.405	2.991	2.893	2.6
1970	3.197	3.101	2.944	2.802	2.766	2.71
1971	3.633	3.5	3.233	3.15	3.098	2.901
1972	5.182	4.84	4.167	4.023	3.88	3.391
1973	5.127	4.907	4.426	4.209	4.116	3.796
1974	4.581	4.455	4.262	4.165	4.121	3.978
1975	4.781	4.651	4.41	4.265	4.199	4.056
1976	4.865	4.729	4.334	4.127	4.085	3.981
1977	4.464	4.365	4.139	4.031	3.995	3.917
1978	4.675	4.552	4.333	4.134	4.093	3.953
1979	5.262	5.126	4.647	4.357	4.326	4.116
1980	4.176	4.146	4.101	4.082	4.075	3.928
1981	4.472	4.351	4.19	4.048	3.978	3.774
1982	5.779	5.473	4.946	4.644	4.61	4.097
1983	4.703	4.602	4.383	4.227	4.202	4.125
1984	6.212	5.887	5.155	4.838	4.733	4.308
1985	5.41	5.211	4.776	4.543	4.494	4.362
1986	4.831	4.749	4.55	4.401	4.388	4.301
1987	5.196	5.024	4.656	4.486	4.417	4.24
1988	6.488	6.13	5.356	4.863	4.803	4.452
1989	5.173	5.078	4.946	4.891	4.836	4.575
1990	6.4	6.102	5.433	5.081	5.04	4.709

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	6.488	6.13	5.433	5.081	5.04	4.709
0.0645161290322581	6.4	6.102	5.356	4.891	4.836	4.575
0.0967741935483871	6.212	5.887	5.155	4.863	4.803	4.452
0.129032258064516	5.779	5.473	4.946	4.838	4.733	4.362
0.161290322580645	5.41	5.211	4.946	4.644	4.61	4.308
0.193548387096774	5.262	5.126	4.776	4.543	4.494	4.301
0.225806451612903	5.196	5.078	4.656	4.486	4.417	4.24
0.258064516129032	5.182	5.024	4.647	4.401	4.388	4.125
0.290322580645161	5.173	4.907	4.55	4.357	4.326	4.116
0.32258064516129	5.127	4.84	4.426	4.265	4.202	4.097
0.354838709677419	4.865	4.749	4.41	4.227	4.199	4.056
0.387096774193548	4.831	4.729	4.383	4.209	4.121	3.981
0.419354838709677	4.781	4.651	4.334	4.165	4.116	3.978
0.451612903225806	4.703	4.602	4.333	4.134	4.093	3.953
0.483870967741936	4.675	4.552	4.262	4.127	4.085	3.928
0.516129032258065	4.581	4.455	4.19	4.082	4.075	3.917
0.548387096774194	4.472	4.365	4.167	4.048	3.995	3.796
0.580645161290323	4.464	4.351	4.139	4.031	3.978	3.774
0.612903225806452	4.386	4.146	4.101	4.023	3.88	3.391
0.645161290322581	4.291	4.051	3.405	3.15	3.098	2.901
0.67741935483871	4.176	3.996	3.341	2.991	2.893	2.71
0.709677419354839	3.741	3.5	3.233	2.886	2.771	2.6
0.741935483870968	3.633	3.425	2.944	2.802	2.766	2.41
0.774193548387097	3.197	3.101	2.824	2.448	2.355	1.955
0.806451612903226	1.996	1.791	1.722	1.64	1.621	1.477
0.838709677419355	1.867	1.77	1.521	1.46	1.441	1.351
0.870967741935484	1.816	1.686	1.435	1.35	1.324	1.27
0.903225806451613	1.651	1.594	1.406	1.287	1.273	1.046
0.935483870967742	1.595	1.537	1.272	1.035	1.019	0.7498
0.967741935483871	1.518	1.294	0.9617	0.6479	0.5739	0.247
0.1	6.1687	5.8456	5.1341	4.8605	4.796	4.443
				Average of yearly averages:		3.22586

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoPAapplePondGr
Metfile: w14737.dvf
PRZM scenario: PAappleC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.08	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	27-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Interval 4 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to CA Sugar Beets:

stored as difenCAsugarbPondAir.out
Chemical: difenoconazole
PRZM environment: CAsugarbeet_NirrigOP.txt modified Thuday, 17 June 2004 at 08:15:12
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w93193.dvf modified Wedday, 3 July 2002 at 09:04:24
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.6035	0.5153	0.4028	0.2734	0.2299	0.1174
1962	1.09	0.9795	0.7232	0.5903	0.5431	0.4263
1963	1.181	1.092	0.9819	0.8469	0.797	0.6976
1964	1.277	1.188	1.079	0.9418	0.8906	0.8005
1965	1.457	1.367	1.258	1.12	1.067	0.9669
1966	2.376	2.146	1.666	1.265	1.175	1.066
1967	1.828	1.737	1.632	1.487	1.427	1.318
1968	1.957	1.839	1.606	1.492	1.427	1.322
1969	3.943	3.564	2.83	2.418	2.277	2.005
1970	3.074	2.871	2.447	2.224	2.168	2.068
1971	2.51	2.418	2.316	2.165	2.098	2.007
1972	2.808	2.68	2.353	2.108	2.01	1.95
1973	2.488	2.397	2.293	2.145	2.08	2.001
1974	2.44	2.352	2.245	2.096	2.031	1.962
1975	2.348	2.258	2.153	2.007	1.945	1.846

1976	3.045	2.83	2.382	2.148	2.092	1.986
1977	2.437	2.344	2.241	2.092	2.026	1.949
1978	2.904	2.814	2.498	2.344	2.307	2.196
1979	2.54	2.448	2.346	2.195	2.128	2.04
1980	2.758	2.636	2.403	2.278	2.233	2.103
1981	2.672	2.549	2.303	2.151	2.099	2.003
1982	2.648	2.543	2.262	2.201	2.128	2.028
1983	3.419	3.207	2.893	2.597	2.519	2.371
1984	2.644	2.551	2.451	2.294	2.23	2.15
1985	2.477	2.385	2.283	2.131	2.066	1.999
1986	3.093	2.888	2.313	2.163	2.113	2.034
1987	2.53	2.469	2.324	2.178	2.121	2.031
1988	2.407	2.314	2.213	2.06	1.998	1.904
1989	2.329	2.237	2.133	1.984	1.92	1.838
1990	2.562	2.452	2.156	2.01	1.954	1.845

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	3.943	3.564	2.893	2.597	2.519	2.371
0.0645161290322581	3.419	3.207	2.83	2.418	2.307	2.196
0.0967741935483871	3.093	2.888	2.498	2.344	2.277	2.15
0.129032258064516	3.074	2.871	2.451	2.294	2.233	2.103
0.161290322580645	3.045	2.83	2.447	2.278	2.23	2.068
0.193548387096774	2.904	2.814	2.403	2.224	2.168	2.04
0.225806451612903	2.808	2.68	2.382	2.201	2.128	2.034
0.258064516129032	2.758	2.636	2.353	2.195	2.128	2.031
0.290322580645161	2.672	2.551	2.346	2.178	2.121	2.028
0.32258064516129	2.648	2.549	2.324	2.165	2.113	2.007
0.354838709677419	2.644	2.543	2.316	2.163	2.099	2.005
0.387096774193548	2.562	2.469	2.313	2.151	2.098	2.003
0.419354838709677	2.54	2.452	2.303	2.148	2.092	2.001
0.451612903225806	2.53	2.448	2.293	2.145	2.08	1.999
0.483870967741936	2.51	2.418	2.283	2.131	2.066	1.986
0.516129032258065	2.488	2.397	2.262	2.108	2.031	1.962
0.548387096774194	2.477	2.385	2.245	2.096	2.026	1.95
0.580645161290323	2.44	2.352	2.241	2.092	2.01	1.949
0.612903225806452	2.437	2.344	2.213	2.06	1.998	1.904
0.645161290322581	2.407	2.314	2.156	2.01	1.954	1.846
0.67741935483871	2.376	2.258	2.153	2.007	1.945	1.845
0.709677419354839	2.348	2.237	2.133	1.984	1.92	1.838
0.741935483870968	2.329	2.146	1.666	1.492	1.427	1.322
0.774193548387097	1.957	1.839	1.632	1.487	1.427	1.318
0.806451612903226	1.828	1.737	1.606	1.265	1.175	1.066
0.838709677419355	1.457	1.367	1.258	1.12	1.067	0.9669
0.870967741935484	1.277	1.188	1.079	0.9418	0.8906	0.8005
0.903225806451613	1.181	1.092	0.9819	0.8469	0.797	0.6976
0.935483870967742	1.09	0.9795	0.7232	0.5903	0.5431	0.4263
0.967741935483871	0.6035	0.5153	0.4028	0.2734	0.2299	0.1174
0.1	3.0911	2.8863	2.4933	2.339	2.2726	2.1453

Average of yearly averages: 1.70102333333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenCAsugarbPondAir
Metfile: w93193.dvf
PRZM scenario: CAsugarbeet_NirrigOP.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		

Kd	Kd		mg/L			
Koc	Koc	5381	mg/L			
Photolysis half-life		kdp	228	days	Half-life	
Aerobic Aquatic Metabolism			kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism			kbacs	1110	days	Halfife
Aerobic Soil Metabolism			asm	313	days	Halfife
Hydrolysis:		pH 7	0	days	Half-life	
Method:	CAM	2	integer	See PRZM manual		
Incorporation Depth:		DEPI	0	cm		
Application Rate:		TAPP	0.12	kg/ha		
Application Efficiency:			APPEFF	0.95	fraction	
Spray Drift		DRFT	0.05	fraction of application rate applied to pond		
Application Date		Date	15-06	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1	interval	7	days	Set to 0 or delete line for single app.		
Interval 2	interval	7	days	Set to 0 or delete line for single app.		
Interval 3	interval	7	days	Set to 0 or delete line for single app.		
Record 17:	FILTRA					
	IPSCND	1				
	UPTKF					
Record 18:	PLVKRT					
	PLDKRT					
	FEXTRC	0.5				
Flag for Index Res. Run			IR	Pond		
Flag for runoff calc.		RUNOFF	none	none, monthly or total(average of entire run)		

Ground Application to CA Sugar Beets:

stored as difenCAsugarbPondGround.out
Chemical: difenoconazole
PRZM environment: CAsugarbeet_NirrigOP.txt modified Thuday, 17 June 2004 at 08:15:12
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w93193.dvf modified Wedday, 3 July 2002 at 09:04:24
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.4967	0.4219	0.2618	0.1499	0.1091	0.03977
1962	1.022	0.9077	0.5881	0.3761	0.3295	0.2558
1963	0.9883	0.8634	0.7177	0.5365	0.5114	0.4483
1964	0.9091	0.8273	0.7086	0.6025	0.5557	0.478
1965	0.8507	0.797	0.7055	0.6411	0.6079	0.5861
1966	2	1.761	1.261	0.8417	0.7455	0.6345
1967	1.229	1.179	1.023	0.9369	0.9187	0.8537
1968	1.485	1.362	1.121	1.004	0.9335	0.823
1969	3.563	3.169	2.405	1.976	1.832	1.499
1970	2.625	2.413	1.973	1.743	1.687	1.537
1971	1.741	1.675	1.571	1.534	1.522	1.45
1972	2.275	2.142	1.802	1.548	1.442	1.37
1973	1.859	1.782	1.613	1.527	1.501	1.407
1974	1.869	1.792	1.602	1.479	1.449	1.353
1975	1.326	1.317	1.295	1.28	1.276	1.219
1976	2.49	2.267	1.801	1.523	1.467	1.347
1977	1.834	1.732	1.496	1.376	1.364	1.299
1978	2.329	2.236	1.908	1.751	1.712	1.559
1979	1.662	1.642	1.561	1.516	1.499	1.397
1980	2.183	2.055	1.804	1.681	1.637	1.464
1981	2.087	1.959	1.691	1.534	1.498	1.362
1982	2.051	1.942	1.649	1.582	1.504	1.385
1983	2.86	2.639	2.313	2.009	1.93	1.738
1984	1.714	1.662	1.628	1.613	1.604	1.516
1985	1.583	1.546	1.464	1.442	1.433	1.365
1986	2.534	2.321	1.706	1.569	1.527	1.405
1987	1.95	1.886	1.694	1.56	1.53	1.402
1988	1.562	1.498	1.397	1.325	1.323	1.268
1989	1.405	1.373	1.313	1.264	1.263	1.198

1990	1.978	1.863	1.545	1.355	1.308	1.202

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	3.563	3.169	2.405	2.009	1.93	1.738
0.0645161290322581	2.86	2.639	2.313	1.976	1.832	1.559
0.0967741935483871	2.625	2.413	1.973	1.751	1.712	1.537
0.129032258064516	2.534	2.321	1.908	1.743	1.687	1.516
0.161290322580645	2.49	2.267	1.804	1.681	1.637	1.499
0.193548387096774	2.329	2.236	1.802	1.613	1.604	1.464
0.225806451612903	2.275	2.142	1.801	1.582	1.53	1.45
0.258064516129032	2.183	2.055	1.706	1.569	1.527	1.407
0.290322580645161	2.087	1.959	1.694	1.56	1.522	1.405
0.32258064516129	2.051	1.942	1.691	1.548	1.504	1.402
0.354838709677419	2	1.886	1.649	1.534	1.501	1.397
0.387096774193548	1.978	1.863	1.628	1.534	1.499	1.385
0.419354838709677	1.95	1.792	1.613	1.527	1.498	1.37
0.451612903225806	1.869	1.782	1.602	1.523	1.467	1.365
0.483870967741936	1.859	1.761	1.571	1.516	1.449	1.362
0.516129032258065	1.834	1.732	1.561	1.479	1.442	1.353
0.548387096774194	1.741	1.675	1.545	1.442	1.433	1.347
0.580645161290323	1.714	1.662	1.496	1.376	1.364	1.299
0.612903225806452	1.662	1.642	1.464	1.355	1.323	1.268
0.645161290322581	1.583	1.546	1.397	1.325	1.308	1.219
0.67741935483871	1.562	1.498	1.313	1.28	1.276	1.202
0.709677419354839	1.485	1.373	1.295	1.264	1.263	1.198
0.741935483870968	1.405	1.362	1.261	1.004	0.9335	0.8537
0.774193548387097	1.326	1.317	1.121	0.9369	0.9187	0.823
0.806451612903226	1.229	1.179	1.023	0.8417	0.7455	0.6345
0.838709677419355	1.022	0.9077	0.7177	0.6411	0.6079	0.5861
0.870967741935484	0.9883	0.8634	0.7086	0.6025	0.5557	0.478
0.903225806451613	0.9091	0.8273	0.7055	0.5365	0.5114	0.4483
0.935483870967742	0.8507	0.797	0.5881	0.3761	0.3295	0.2558
0.967741935483871	0.4967	0.4219	0.2618	0.1499	0.1091	0.03977
0.1	2.6159	2.4038	1.9665	1.7502	1.7095	1.5349

Average of yearly averages: 1.162039

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenCAsugarbPondGround
Metfile: w93193.dvf
PRZM scenario: CAsugarbeet_NirrigOP.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	15-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	

Interval 2	interval	7	days	Set to 0 or delete line for single app.
Interval 3	interval	7	days	Set to 0 or delete line for single app.
Record 17:	FILTRA			
	IPSCND	1		
	UPTKF			
Record 18:	PLVKRT			
	PLDKRT			
	FEXTRC	0.5		
Flag for Index Res. Run			IR	Pond
Flag for runoff calc.	RUNOFF		none	none, monthly or total(average of entire run)

Aerial Application to MN Sugar Beets:

stored as difenoMNsugarbPondAir.out
Chemical: difenoconazole
PRZM environment: MNsugarbeetC.txt modified Satday, 12 October 2002 at 16:05:10
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14914.dvf modified Wedday, 3 July 2002 at 09:05:52
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.6052	0.5173	0.409	0.3039	0.2892	0.1434
1962	1.25	1.108	0.9059	0.7174	0.6702	0.4368
1963	1.451	1.323	1.044	0.8862	0.8677	0.6893
1964	1.616	1.481	1.396	1.178	1.162	0.9421
1965	1.631	1.541	1.435	1.358	1.316	1.159
1966	1.776	1.695	1.583	1.533	1.507	1.334
1967	1.948	1.859	1.75	1.612	1.559	1.436
1968	2.007	1.914	1.802	1.665	1.61	1.484
1969	2.879	2.667	2.409	2.09	2.006	1.707
1970	2.843	2.677	2.312	2.102	2.054	1.905
1971	2.529	2.439	2.308	2.208	2.186	2.051
1972	2.632	2.542	2.435	2.333	2.286	2.155
1973	2.767	2.673	2.477	2.387	2.348	2.216
1974	3.742	3.533	3.069	2.909	2.816	2.492
1975	4.175	3.95	3.507	3.166	3.066	2.772
1976	3.253	3.161	3.058	2.908	2.841	2.745
1977	4.196	4.044	3.523	3.182	3.103	2.876
1978	3.535	3.441	3.314	3.208	3.192	2.998
1979	3.62	3.52	3.373	3.288	3.218	3.062
1980	3.649	3.538	3.339	3.267	3.218	3.092
1981	3.587	3.5	3.425	3.3	3.233	3.097
1982	4.196	3.994	3.545	3.291	3.227	3.081
1983	3.84	3.709	3.57	3.386	3.321	3.145
1984	3.825	3.726	3.498	3.287	3.222	3.132
1985	3.717	3.62	3.472	3.391	3.333	3.173
1986	3.726	3.623	3.537	3.417	3.365	3.194
1987	3.59	3.505	3.396	3.318	3.266	3.136
1988	3.486	3.394	3.293	3.144	3.108	3.038
1989	3.707	3.619	3.396	3.209	3.194	3.055
1990	3.585	3.488	3.414	3.237	3.162	3.034

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	4.196	4.044	3.57	3.417	3.365	3.194
0.0645161290322581	4.196	3.994	3.545	3.391	3.333	3.173
0.0967741935483871	4.175	3.95	3.537	3.386	3.321	3.145
0.129032258064516	3.84	3.726	3.523	3.318	3.266	3.136
0.161290322580645	3.825	3.709	3.507	3.3	3.233	3.132
0.193548387096774	3.742	3.623	3.498	3.291	3.227	3.097
0.225806451612903	3.726	3.62	3.472	3.288	3.222	3.092
0.258064516129032	3.717	3.619	3.425	3.287	3.218	3.081
0.290322580645161	3.707	3.538	3.414	3.267	3.218	3.062

0.32258064516129	3.649	3.533	3.396	3.237	3.194	3.055
0.354838709677419	3.62	3.52	3.396	3.209	3.192	3.038
0.387096774193548	3.59	3.505	3.373	3.208	3.162	3.034
0.419354838709677	3.587	3.5	3.339	3.182	3.108	2.998
0.451612903225806	3.585	3.488	3.314	3.166	3.103	2.876
0.483870967741936	3.535	3.441	3.293	3.144	3.066	2.772
0.516129032258065	3.486	3.394	3.069	2.909	2.841	2.745
0.548387096774194	3.253	3.161	3.058	2.908	2.816	2.492
0.580645161290323	2.879	2.677	2.477	2.387	2.348	2.216
0.612903225806452	2.843	2.673	2.435	2.333	2.286	2.155
0.645161290322581	2.767	2.667	2.409	2.208	2.186	2.051
0.67741935483871	2.632	2.542	2.312	2.102	2.054	1.905
0.709677419354839	2.529	2.439	2.308	2.09	2.006	1.707
0.741935483870968	2.007	1.914	1.802	1.665	1.61	1.484
0.774193548387097	1.948	1.859	1.75	1.612	1.559	1.436
0.806451612903226	1.776	1.695	1.583	1.533	1.507	1.334
0.838709677419355	1.631	1.541	1.435	1.358	1.316	1.159
0.870967741935484	1.616	1.481	1.396	1.178	1.162	0.9421
0.903225806451613	1.451	1.323	1.044	0.8862	0.8677	0.6893
0.935483870967742	1.25	1.108	0.9059	0.7174	0.6702	0.4368
0.967741935483871	0.6052	0.5173	0.409	0.3039	0.2892	0.1434
0.1	4.1415	3.9276	3.5356	3.3792	3.3155	3.1441
				Average of yearly averages:		2.29268666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoMNsugarbPondAir
Metfile: w14914.dvf
PRZM scenario: MNsugarbeetC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	15-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to MN Sugar Beets:

stored as difenoMNsugarbPondGr.out
Chemical: difenoconazole
PRZM environment: MNsugarbeetC.txt modified Satday, 12 October 2002 at 16:05:10
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14914.dvf modified Wedday, 3 July 2002 at 09:05:52
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.3455	0.3156	0.2242	0.1658	0.1515	0.06525
1962	0.7351	0.664	0.5154	0.4294	0.406	0.2581
1963	1.173	1.042	0.7553	0.5898	0.5533	0.4207
1964	1.14	1.032	0.8462	0.7211	0.7205	0.5948
1965	0.9895	0.9447	0.8627	0.8135	0.8086	0.7363
1966	1.218	1.15	1.05	0.9763	0.9469	0.8416
1967	0.9843	0.9656	0.946	0.9149	0.9106	0.8778
1968	0.9832	0.9613	0.9411	0.9075	0.8945	0.8652
1969	2.069	1.895	1.676	1.368	1.295	1.041
1970	2.166	1.994	1.616	1.399	1.352	1.199
1971	1.791	1.698	1.499	1.464	1.443	1.309
1972	1.56	1.524	1.457	1.422	1.414	1.377
1973	1.971	1.874	1.672	1.576	1.539	1.405
1974	2.932	2.716	2.24	2.063	1.974	1.659
1975	3.003	2.84	2.441	2.194	2.132	1.92
1976	1.973	1.963	1.946	1.939	1.938	1.87
1977	3.092	2.917	2.47	2.203	2.158	1.989
1978	2.638	2.541	2.324	2.203	2.196	2.095
1979	2.634	2.542	2.348	2.239	2.204	2.141
1980	2.722	2.608	2.405	2.337	2.29	2.157
1981	2.461	2.403	2.274	2.215	2.205	2.146
1982	3.276	3.066	2.6	2.338	2.273	2.112
1983	2.57	2.496	2.392	2.285	2.258	2.163
1984	2.871	2.768	2.532	2.315	2.248	2.141
1985	2.606	2.525	2.373	2.268	2.24	2.172
1986	2.446	2.394	2.295	2.274	2.263	2.181
1987	2.489	2.417	2.254	2.177	2.156	2.116
1988	2.37	2.323	2.157	2.062	2.046	2.018
1989	2.714	2.621	2.392	2.199	2.154	2.037
1990	2.262	2.229	2.165	2.088	2.059	2.011

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	3.276	3.066	2.6	2.338	2.29	2.181
0.0645161290322581	3.092	2.917	2.532	2.337	2.273	2.172
0.0967741935483871	3.003	2.84	2.47	2.315	2.263	2.163
0.129032258064516	2.932	2.768	2.441	2.285	2.258	2.157
0.161290322580645	2.871	2.716	2.405	2.274	2.248	2.146
0.193548387096774	2.722	2.621	2.392	2.268	2.24	2.141
0.225806451612903	2.714	2.608	2.392	2.239	2.205	2.141
0.258064516129032	2.638	2.542	2.373	2.215	2.204	2.116
0.290322580645161	2.634	2.541	2.348	2.203	2.196	2.112
0.32258064516129	2.606	2.525	2.324	2.203	2.158	2.095
0.354838709677419	2.57	2.496	2.295	2.199	2.156	2.037
0.387096774193548	2.489	2.417	2.274	2.194	2.154	2.018
0.419354838709677	2.461	2.403	2.254	2.177	2.132	2.011
0.451612903225806	2.446	2.394	2.24	2.088	2.059	1.989
0.483870967741936	2.37	2.323	2.165	2.063	2.046	1.92
0.516129032258065	2.262	2.229	2.157	2.062	1.974	1.87
0.548387096774194	2.166	1.994	1.946	1.939	1.938	1.659
0.580645161290323	2.069	1.963	1.676	1.576	1.539	1.405
0.612903225806452	1.973	1.895	1.672	1.464	1.443	1.377
0.645161290322581	1.971	1.874	1.616	1.422	1.414	1.309
0.67741935483871	1.791	1.698	1.499	1.399	1.352	1.199
0.709677419354839	1.56	1.524	1.457	1.368	1.295	1.041

0.741935483870968	1.218	1.15	1.05	0.9763	0.9469	0.8778
0.774193548387097	1.173	1.042	0.946	0.9149	0.9106	0.8652
0.806451612903226	1.14	1.032	0.9411	0.9075	0.8945	0.8416
0.838709677419355	0.9895	0.9656	0.8627	0.8135	0.8086	0.7363
0.870967741935484	0.9843	0.9613	0.8462	0.7211	0.7205	0.5948
0.903225806451613	0.9832	0.9447	0.7553	0.5898	0.5533	0.4207
0.935483870967742	0.7351	0.664	0.5154	0.4294	0.406	0.2581
0.967741935483871	0.3455	0.3156	0.2242	0.1658	0.1515	0.06525
0.1	2.9959	2.8328	2.4671	2.312	2.2625	2.1624
				Average of yearly averages:		1.530625

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoMNsugarbPondGr
Metfile: w14914.dvf
PRZM scenario: MNsugarbeetC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	15-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to ID Potato:

stored as difenoIDPotatoPondAir.out
Chemical: difenoconazole
PRZM environment: IDNpotato_NirrigC.txt modified Monday, 9 January 2006 at 11:51:00
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w24156.dvf modified Wedday, 3 July 2002 at 09:04:38
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.6051	0.5171	0.4046	0.2754	0.2461	0.1267
1962	0.8121	0.7243	0.6121	0.4926	0.4497	0.3127
1963	0.9858	0.8973	0.7867	0.6545	0.6079	0.4769
1964	1.11	1.021	0.9119	0.7784	0.7307	0.6022
1965	1.233	1.143	1.045	0.9251	0.8746	0.7319

1966	1.323	1.234	1.125	0.9897	0.941	0.8168
1967	1.402	1.313	1.205	1.069	1.018	0.8891
1968	1.463	1.374	1.265	1.17	1.149	0.9959
1969	1.6	1.51	1.403	1.266	1.214	1.092
1970	1.689	1.6	1.492	1.355	1.302	1.176
1971	1.739	1.65	1.541	1.404	1.364	1.263
1972	1.849	1.76	1.651	1.527	1.491	1.361
1973	1.898	1.809	1.71	1.604	1.565	1.427
1974	1.982	1.893	1.785	1.646	1.593	1.481
1975	2.002	1.912	1.805	1.666	1.612	1.507
1976	2.048	1.958	1.851	1.712	1.658	1.565
1977	2.098	2.009	1.901	1.761	1.706	1.593
1978	2.097	2.007	1.899	1.76	1.706	1.589
1979	2.106	2.016	1.908	1.77	1.717	1.6
1980	2.145	2.056	1.948	1.809	1.759	1.672
1981	2.221	2.131	2.024	1.883	1.826	1.711
1982	2.234	2.144	2.036	1.908	1.862	1.75
1983	2.288	2.196	2.083	1.942	1.906	1.795
1984	2.341	2.251	2.144	2.044	1.987	1.852
1985	2.361	2.271	2.166	2.023	1.968	1.858
1986	2.378	2.288	2.18	2.04	1.983	1.879
1987	2.338	2.248	2.145	2.032	1.976	1.85
1988	2.316	2.226	2.12	1.977	1.92	1.82
1989	2.312	2.222	2.116	1.974	1.918	1.81
1990	2.301	2.211	2.105	1.963	1.907	1.793

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	2.378	2.288	2.18	2.044	1.987	1.879
0.0645161290322581	2.361	2.271	2.166	2.04	1.983	1.858
0.0967741935483871	2.341	2.251	2.145	2.032	1.976	1.852
0.129032258064516	2.338	2.248	2.144	2.023	1.968	1.85
0.161290322580645	2.316	2.226	2.12	1.977	1.92	1.82
0.193548387096774	2.312	2.222	2.116	1.974	1.918	1.81
0.225806451612903	2.301	2.211	2.105	1.963	1.907	1.795
0.258064516129032	2.288	2.196	2.083	1.942	1.906	1.793
0.290322580645161	2.234	2.144	2.036	1.908	1.862	1.75
0.32258064516129	2.221	2.131	2.024	1.883	1.826	1.711
0.354838709677419	2.145	2.056	1.948	1.809	1.759	1.672
0.387096774193548	2.106	2.016	1.908	1.77	1.717	1.6
0.419354838709677	2.098	2.009	1.901	1.761	1.706	1.593
0.451612903225806	2.097	2.007	1.899	1.76	1.706	1.589
0.483870967741936	2.048	1.958	1.851	1.712	1.658	1.565
0.516129032258065	2.002	1.912	1.805	1.666	1.612	1.507
0.548387096774194	1.982	1.893	1.785	1.646	1.593	1.481
0.580645161290323	1.898	1.809	1.71	1.604	1.565	1.427
0.612903225806452	1.849	1.76	1.651	1.527	1.491	1.361
0.645161290322581	1.739	1.65	1.541	1.404	1.364	1.263
0.67741935483871	1.689	1.6	1.492	1.355	1.302	1.176
0.709677419354839	1.6	1.51	1.403	1.266	1.214	1.092
0.741935483870968	1.463	1.374	1.265	1.17	1.149	0.9959
0.774193548387097	1.402	1.313	1.205	1.069	1.018	0.8891
0.806451612903226	1.323	1.234	1.125	0.9897	0.941	0.8168
0.838709677419355	1.233	1.143	1.045	0.9251	0.8746	0.7319
0.870967741935484	1.11	1.021	0.9119	0.7784	0.7307	0.6022
0.903225806451613	0.9858	0.8973	0.7867	0.6545	0.6079	0.4769
0.935483870967742	0.8121	0.7243	0.6121	0.4926	0.4497	0.3127
0.967741935483871	0.6051	0.5171	0.4046	0.2754	0.2461	0.1267
0.1	2.3407	2.2507	2.1449	2.0311	1.9752	1.8518

Average of yearly averages: 1.34654

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:

Output File: difenoIDPotatoPondAir
Metfile: w24156.dvf
PRZM scenario: IDNpotato_NirrigC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	20-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to ID Potato:

stored as difenoIDPotatoPondGr.out
Chemical: difenoconazole
PRZM environment: IDNpotato_NirrigC.txt modified Monday, 9 January 2006 at 11:51:00
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w24156.dvf modified Wedday, 3 July 2002 at 09:04:38
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.3511	0.2987	0.1837	0.1526	0.1369	0.0494
1962	0.2235	0.2061	0.1837	0.1694	0.1612	0.1302
1963	0.3334	0.3015	0.263	0.2357	0.2253	0.1996
1964	0.3986	0.3745	0.3044	0.2746	0.2635	0.2389
1965	0.4607	0.4308	0.3734	0.3438	0.3295	0.2891
1966	0.4032	0.3852	0.3638	0.3358	0.325	0.3019
1967	0.4169	0.3985	0.3795	0.3519	0.3396	0.3105
1968	0.7289	0.673	0.5577	0.462	0.4405	0.3602
1969	0.5057	0.4873	0.468	0.4403	0.4278	0.4033
1970	0.6331	0.595	0.5126	0.5004	0.4874	0.442
1971	0.8163	0.7589	0.6402	0.5741	0.5618	0.487
1972	0.7455	0.7098	0.6302	0.5852	0.5791	0.5465
1973	0.7948	0.7537	0.6624	0.6332	0.6279	0.5786
1974	0.7022	0.6839	0.6635	0.6335	0.6262	0.6043
1975	0.8253	0.7841	0.6934	0.643	0.625	0.6021
1976	1.047	0.9731	0.811	0.7175	0.6968	0.6367
1977	0.7457	0.7274	0.707	0.6767	0.6669	0.6443
1978	0.7245	0.7062	0.6859	0.656	0.6504	0.6219
1979	0.7101	0.692	0.6711	0.6423	0.6297	0.61
1980	1.103	1.024	0.8498	0.7498	0.7204	0.6636

1981	0.7888	0.7704	0.7504	0.7248	0.7156	0.6854
1982	0.8789	0.8472	0.796	0.748	0.7378	0.7109
1983	0.8757	0.8479	0.7971	0.7752	0.7763	0.7409
1984	0.9944	0.967	0.8837	0.8446	0.8285	0.7878
1985	0.9591	0.9266	0.8552	0.8153	0.8041	0.7842
1986	0.9398	0.9223	0.886	0.8477	0.8339	0.7982
1987	0.9498	0.9162	0.8437	0.811	0.7963	0.7628
1988	0.8253	0.8067	0.7869	0.7555	0.7441	0.7321
1989	0.8468	0.8242	0.7828	0.7516	0.739	0.7221
1990	0.8315	0.8095	0.766	0.7352	0.7239	0.7017

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	1.103	1.024	0.886	0.8477	0.8339	0.7982
0.064516129032258	1.047	0.9731	0.8837	0.8446	0.8285	0.7878
0.096774193548387	0.9944	0.967	0.8552	0.8153	0.8041	0.7842
0.129032258064516	0.9591	0.9266	0.8498	0.811	0.7963	0.7628
0.161290322580645	0.9498	0.9223	0.8437	0.7752	0.7763	0.7409
0.193548387096774	0.9398	0.9162	0.811	0.7555	0.7441	0.7321
0.225806451612903	0.8789	0.8479	0.7971	0.7516	0.739	0.7221
0.258064516129032	0.8757	0.8472	0.796	0.7498	0.7378	0.7109
0.290322580645161	0.8468	0.8242	0.7869	0.748	0.7239	0.7017
0.32258064516129	0.8315	0.8095	0.7828	0.7352	0.7204	0.6854
0.354838709677419	0.8253	0.8067	0.766	0.7248	0.7156	0.6636
0.387096774193548	0.8253	0.7841	0.7504	0.7175	0.6968	0.6443
0.419354838709677	0.8163	0.7704	0.707	0.6767	0.6669	0.6367
0.451612903225806	0.7948	0.7589	0.6934	0.656	0.6504	0.6219
0.483870967741936	0.7888	0.7537	0.6859	0.643	0.6297	0.61
0.516129032258065	0.7457	0.7274	0.6711	0.6423	0.6279	0.6043
0.548387096774194	0.7455	0.7098	0.6635	0.6335	0.6262	0.6021
0.580645161290323	0.7289	0.7062	0.6624	0.6332	0.625	0.5786
0.612903225806452	0.7245	0.692	0.6402	0.5852	0.5791	0.5465
0.645161290322581	0.7101	0.6839	0.6302	0.5741	0.5618	0.487
0.67741935483871	0.7022	0.673	0.5577	0.5004	0.4874	0.442
0.709677419354839	0.6331	0.595	0.5126	0.462	0.4405	0.4033
0.741935483870968	0.5057	0.4873	0.468	0.4403	0.4278	0.3602
0.774193548387097	0.4607	0.4308	0.3795	0.3519	0.3396	0.3105
0.806451612903226	0.4169	0.3985	0.3734	0.3438	0.3295	0.3019
0.838709677419355	0.4032	0.3852	0.3638	0.3358	0.325	0.2891
0.870967741935484	0.3986	0.3745	0.3044	0.2746	0.2635	0.2389
0.903225806451613	0.3511	0.3015	0.263	0.2357	0.2253	0.1996
0.935483870967742	0.3334	0.2987	0.1837	0.1694	0.1612	0.1302
0.967741935483871	0.2235	0.2061	0.1837	0.1526	0.1369	0.0494
0.1	0.99087	0.96296	0.85466	0.81487	0.80332	0.78206

Average of yearly averages: 0.538206666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoIDPotatoPondGr
Metfile: w24156.dvf
PRZM scenario: IDNpotato_NirrigC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife

Aerobic Soil Metabolism		asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life	
Method: CAM	2	integer	See PRZM manual		
Incorporation Depth:	DEPI	0	cm		
Application Rate:	TAPP	0.12	kg/ha		
Application Efficiency:		APPEFF	0.99	fraction	
Spray Drift	DRFT	0.01	fraction of application rate applied to pond		
Application Date	Date	20-06	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1 interval	7	days	Set to 0 or delete line for single app.		
Interval 2 interval	7	days	Set to 0 or delete line for single app.		
Interval 3 interval	7	days	Set to 0 or delete line for single app.		
Record 17: FILTRA					
IPSCND	1				
UPTKF					
Record 18: PLVKRT					
PLDKRT					
FEXTRC	0.5				
Flag for Index Res. Run		IR	Pond		
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)		

Aerial Application to ME Potato – Concentrations in Water Column:

stored as difenoMEpotatoPondAir.out
Chemical: difenoconazole
PRZM environment: MEpotatoC.txt modified Satday, 12 October 2002 at 16:03:32
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14607.dvf modified Wedday, 3 July 2002 at 09:05:36
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.991	1.792	1.389	1.152	1.079	0.464
1962	4.59	4.085	3.15	2.538	2.398	1.594
1963	3.949	3.741	3.418	3.181	3.132	2.553
1964	4.63	4.374	3.927	3.664	3.606	3.277
1965	4.613	4.485	4.208	4.086	4.052	3.766
1966	4.927	4.778	4.555	4.378	4.279	4.036
1967	6.967	6.545	5.626	5.249	5.229	4.64
1968	7.122	6.797	6.408	5.929	5.793	5.33
1969	7.568	7.314	6.897	6.63	6.531	5.954
1970	7.811	7.617	7.218	6.98	6.91	6.485
1971	7.137	7.036	6.944	6.786	6.752	6.693
1972	8.694	8.409	8.035	7.605	7.497	6.953
1973	9.577	9.317	8.727	8.086	7.927	7.462
1974	8.647	8.459	8.134	7.894	7.819	7.638
1975	8.575	8.418	8.15	7.939	7.885	7.679
1976	10.01	9.736	9.198	8.908	8.772	8.124
1977	10.95	10.54	9.788	9.29	9.183	8.619
1978	11.01	10.78	10.04	9.504	9.409	8.976
1979	10.5	10.28	9.848	9.558	9.476	9.156
1980	10.73	10.48	9.977	9.645	9.563	9.277
1981	12.45	11.98	11.01	10.43	10.26	9.583
1982	12.01	11.63	11.02	10.64	10.51	10
1983	12.89	12.44	11.53	11.1	10.94	10.39
1984	12.25	11.96	11.36	10.97	10.82	10.49
1985	11.58	11.35	10.96	10.62	10.5	10.29
1986	11.77	11.52	11.18	10.93	10.81	10.37
1987	10.98	10.85	10.68	10.54	10.49	10.36
1988	11.07	10.92	10.63	10.52	10.44	10.26
1989	12.55	12.19	11.34	10.86	10.72	10.31
1990	12.31	12.06	11.38	10.89	10.85	10.5

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.0322580645161290	12.89	12.44	11.53	11.1	10.94	10.5
0.0645161290322581	12.55	12.19	11.38	10.97	10.85	10.49

0.0967741935483871	12.45	12.06	11.36	10.93	10.82	10.39
0.129032258064516	12.31	11.98	11.34	10.89	10.81	10.37
0.161290322580645	12.25	11.96	11.18	10.86	10.72	10.36
0.193548387096774	12.01	11.63	11.02	10.64	10.51	10.31
0.225806451612903	11.77	11.52	11.01	10.62	10.5	10.29
0.258064516129032	11.58	11.35	10.96	10.54	10.49	10.26
0.290322580645161	11.07	10.92	10.68	10.52	10.44	10
0.32258064516129	11.01	10.85	10.63	10.43	10.26	9.583
0.354838709677419	10.98	10.78	10.04	9.645	9.563	9.277
0.387096774193548	10.95	10.54	9.977	9.558	9.476	9.156
0.419354838709677	10.73	10.48	9.848	9.504	9.409	8.976
0.451612903225806	10.5	10.28	9.788	9.29	9.183	8.619
0.483870967741936	10.01	9.736	9.198	8.908	8.772	8.124
0.516129032258065	9.577	9.317	8.727	8.086	7.927	7.679
0.548387096774194	8.694	8.459	8.15	7.939	7.885	7.638
0.580645161290323	8.647	8.418	8.134	7.894	7.819	7.462
0.612903225806452	8.575	8.409	8.035	7.605	7.497	6.953
0.645161290322581	7.811	7.617	7.218	6.98	6.91	6.693
0.67741935483871	7.568	7.314	6.944	6.786	6.752	6.485
0.709677419354839	7.137	7.036	6.897	6.63	6.531	5.954
0.741935483870968	7.122	6.797	6.408	5.929	5.793	5.33
0.774193548387097	6.967	6.545	5.626	5.249	5.229	4.64
0.806451612903226	4.927	4.778	4.555	4.378	4.279	4.036
0.838709677419355	4.63	4.485	4.208	4.086	4.052	3.766
0.870967741935484	4.613	4.374	3.927	3.664	3.606	3.277
0.903225806451613	4.59	4.085	3.418	3.181	3.132	2.553
0.935483870967742	3.949	3.741	3.15	2.538	2.398	1.594
0.967741935483871	1.991	1.792	1.389	1.152	1.079	0.464
0.1	12.436	12.052	11.358	10.926	10.819	10.388
				Average of yearly averages:		7.3743

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoMEpotatoPondAir
Metfile: w14607.dvf
PRZM scenario: MEpotatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	20-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	

Record 17: FILTRA
IPSCND 1
UPTKF
Record 18: PLVKRT

PLDKRT
FEXTRC 0.5
Flag for Index Res. Run IR Pond
Flag for runoff calc. RUNOFF none none, monthly or total(average of entire run)

Aerial Application to ME Potato – Concentrations in Pore Water:

stored as difenoMEpotatoPondAirBben.out
Chemical: difenoconazole
PRZM environment: MEpotatoC.txt modified Satday, 12 October 2002 at 16:03:32
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14607.dvf modified Wedday, 3 July 2002 at 09:05:36
Benthic segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.896	0.8959	0.8947	0.8895	0.888	0.344
1962	2.022	2.022	2.022	2.016	2.004	1.393
1963	2.859	2.859	2.858	2.851	2.839	2.325
1964	3.409	3.408	3.4	3.393	3.359	3.041
1965	3.79	3.79	3.789	3.782	3.779	3.521
1966	4.032	4.032	4.03	4.021	3.956	3.788
1967	4.803	4.803	4.801	4.793	4.787	4.314
1968	5.355	5.355	5.353	5.346	5.326	4.982
1969	6.022	6.022	6.021	6.012	6.008	5.567
1970	6.469	6.469	6.467	6.455	6.444	6.084
1971	6.412	6.41	6.402	6.383	6.374	6.335
1972	6.958	6.958	6.954	6.947	6.938	6.527
1973	7.335	7.334	7.328	7.302	7.282	7.02
1974	7.365	7.364	7.361	7.349	7.338	7.22
1975	7.404	7.404	7.398	7.377	7.37	7.266
1976	8.104	8.104	8.102	8.085	8.076	7.613
1977	8.489	8.489	8.485	8.482	8.477	8.115
1978	8.745	8.743	8.736	8.717	8.711	8.477
1979	8.918	8.918	8.914	8.894	8.879	8.638
1980	8.97	8.969	8.961	8.937	8.927	8.78
1981	9.493	9.493	9.488	9.466	9.452	9.006
1982	9.788	9.788	9.784	9.765	9.752	9.435
1983	10.19	10.19	10.18	10.15	10.12	9.799
1984	10.2	10.2	10.19	10.14	10.1	9.947
1985	9.93	9.93	9.921	9.881	9.843	9.76
1986	10.12	10.12	10.11	10.1	10.08	9.79
1987	9.959	9.956	9.943	9.913	9.892	9.821
1988	9.865	9.865	9.858	9.836	9.819	9.717
1989	10.06	10.06	10.06	10.03	10.01	9.741
1990	10.18	10.18	10.18	10.17	10.15	9.906

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	10.2	10.2	10.19	10.17	10.15	9.947
0.0645161290322581	10.19	10.19	10.18	10.15	10.12	9.906
0.0967741935483871	10.18	10.18	10.18	10.14	10.1	9.821
0.129032258064516	10.12	10.12	10.11	10.1	10.08	9.799
0.161290322580645	10.06	10.06	10.06	10.03	10.01	9.79
0.193548387096774	9.959	9.956	9.943	9.913	9.892	9.76
0.225806451612903	9.93	9.93	9.921	9.881	9.843	9.741
0.258064516129032	9.865	9.865	9.858	9.836	9.819	9.717
0.290322580645161	9.788	9.788	9.784	9.765	9.752	9.435
0.32258064516129	9.493	9.493	9.488	9.466	9.452	9.006
0.354838709677419	8.97	8.969	8.961	8.937	8.927	8.78
0.387096774193548	8.918	8.918	8.914	8.894	8.879	8.638
0.419354838709677	8.745	8.743	8.736	8.717	8.711	8.477
0.451612903225806	8.489	8.489	8.485	8.482	8.477	8.115
0.483870967741936	8.104	8.104	8.102	8.085	8.076	7.613
0.516129032258065	7.404	7.404	7.398	7.377	7.37	7.266
0.548387096774194	7.365	7.364	7.361	7.349	7.338	7.22

0.580645161290323	7.335	7.334	7.328	7.302	7.282	7.02
0.612903225806452	6.958	6.958	6.954	6.947	6.938	6.527
0.645161290322581	6.469	6.469	6.467	6.455	6.444	6.335
0.67741935483871	6.412	6.41	6.402	6.383	6.374	6.084
0.709677419354839	6.022	6.022	6.021	6.012	6.008	5.567
0.741935483870968	5.355	5.355	5.353	5.346	5.326	4.982
0.774193548387097	4.803	4.803	4.801	4.793	4.787	4.314
0.806451612903226	4.032	4.032	4.03	4.021	3.956	3.788
0.838709677419355	3.79	3.79	3.789	3.782	3.779	3.521
0.870967741935484	3.409	3.408	3.4	3.393	3.359	3.041
0.903225806451613	2.859	2.859	2.858	2.851	2.839	2.325
0.935483870967742	2.022	2.022	2.022	2.016	2.004	1.393
0.967741935483871	0.896	0.8959	0.8947	0.8895	0.888	0.344
0.1	10.174	10.174	10.173	10.136	10.098	9.8188
				Average of yearly averages:		6.9424

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoMEpotatoPondAirB
Metfile: w14607.dvf
PRZM scenario: MEpotatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	20-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to ME Potato - Concentrations in Water Column:

stored as difenoMEPotatoPondGr.out
Chemical: difenoconazole
PRZM environment: MEpotatoC.txt modified Satday, 12 October 2002 at 16:03:32
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14607.dvf modified Wedday, 3 July 2002 at 09:05:36
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly

1961	1.95	1.743	1.324	1.078	1.003	0.4004
1962	4.296	3.818	2.937	2.344	2.221	1.463
1963	3.773	3.557	3.222	2.976	2.928	2.356
1964	4.122	3.912	3.524	3.391	3.33	3.014
1965	4.285	4.153	3.866	3.74	3.707	3.434
1966	4.544	4.389	4.158	3.975	3.871	3.637
1967	6.27	5.889	5.064	4.76	4.748	4.193
1968	6.517	6.209	5.866	5.414	5.284	4.846
1969	7.063	6.803	6.368	6.107	6.009	5.435
1970	7.302	7.099	6.684	6.436	6.364	5.932
1971	6.508	6.421	6.225	6.185	6.15	6.1
1972	8.112	7.816	7.429	6.986	6.876	6.323
1973	8.676	8.469	7.885	7.348	7.216	6.81
1974	7.979	7.784	7.451	7.207	7.132	6.955
1975	7.808	7.657	7.349	7.153	7.123	6.963
1976	9.013	8.759	8.348	8.135	8.006	7.396
1977	10.26	9.836	9.064	8.557	8.451	7.879
1978	10.12	9.814	9.142	8.685	8.609	8.223
1979	9.778	9.545	9.1	8.795	8.715	8.388
1980	9.828	9.593	9.079	8.794	8.728	8.493
1981	11.75	11.26	10.25	9.66	9.49	8.79
1982	11.15	10.78	10.2	9.831	9.713	9.208
1983	11.91	11.49	10.66	10.28	10.13	9.591
1984	11.23	10.98	10.42	10.04	9.934	9.687
1985	10.54	10.35	9.977	9.698	9.597	9.46
1986	10.94	10.69	10.33	10.09	9.97	9.524
1987	10.03	9.913	9.691	9.557	9.551	9.5
1988	10.21	10.06	9.759	9.646	9.565	9.384
1989	11.74	11.37	10.49	9.996	9.855	9.428
1990	11.38	11.14	10.47	10	9.968	9.62

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	11.91	11.49	10.66	10.28	10.13	9.687
0.0645161290322581	11.75	11.37	10.49	10.09	9.97	9.62
0.0967741935483871	11.74	11.26	10.47	10.04	9.968	9.591
0.129032258064516	11.38	11.14	10.42	10	9.934	9.524
0.161290322580645	11.23	10.98	10.33	9.996	9.855	9.5
0.193548387096774	11.15	10.78	10.25	9.831	9.713	9.46
0.225806451612903	10.94	10.69	10.2	9.698	9.597	9.428
0.258064516129032	10.54	10.35	9.977	9.66	9.565	9.384
0.290322580645161	10.26	10.06	9.759	9.646	9.551	9.208
0.32258064516129	10.21	9.913	9.691	9.557	9.49	8.79
0.354838709677419	10.12	9.836	9.142	8.795	8.728	8.493
0.387096774193548	10.03	9.814	9.1	8.794	8.715	8.388
0.419354838709677	9.828	9.593	9.079	8.685	8.609	8.223
0.451612903225806	9.778	9.545	9.064	8.557	8.451	7.879
0.483870967741936	9.013	8.759	8.348	8.135	8.006	7.396
0.516129032258065	8.676	8.469	7.885	7.348	7.216	6.963
0.548387096774194	8.112	7.816	7.451	7.207	7.132	6.955
0.580645161290323	7.979	7.784	7.429	7.153	7.123	6.81
0.612903225806452	7.808	7.657	7.349	6.986	6.876	6.323
0.645161290322581	7.302	7.099	6.684	6.436	6.364	6.1
0.67741935483871	7.063	6.803	6.368	6.185	6.15	5.932
0.709677419354839	6.517	6.421	6.225	6.107	6.009	5.435
0.741935483870968	6.508	6.209	5.866	5.414	5.284	4.846
0.774193548387097	6.27	5.889	5.064	4.76	4.748	4.193
0.806451612903226	4.544	4.389	4.158	3.975	3.871	3.637
0.838709677419355	4.296	4.153	3.866	3.74	3.707	3.434
0.870967741935484	4.285	3.912	3.524	3.391	3.33	3.014
0.903225806451613	4.122	3.818	3.222	2.976	2.928	2.356
0.935483870967742	3.773	3.557	2.937	2.344	2.221	1.463
0.967741935483871	1.95	1.743	1.324	1.078	1.003	0.4004
0.1	11.704	11.248	10.465	10.036	9.9646	9.5843

Average of yearly averages: 6.74774666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoMEPotatoPondGr
Metfile: w14607.dvf
PRZM scenario: MEpotatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:	APPEFF	0.99	fraction	
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	20-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run	IR	Pond		
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to ME Potato - Pore Water Concentrations:

stored as difenoMEpotatoPondGrBben.out
Chemical: difenoconazole
PRZM environment: MEpotatoC.txt modified Satday, 12 October 2002 at 16:03:32
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14607.dvf modified Wedday, 3 July 2002 at 09:05:36
Benthic segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.8193	0.8191	0.8177	0.812	0.8102	0.3024
1962	1.886	1.886	1.886	1.879	1.866	1.286
1963	2.662	2.662	2.661	2.653	2.64	2.155
1964	3.147	3.146	3.137	3.129	3.092	2.809
1965	3.462	3.462	3.461	3.454	3.45	3.224
1966	3.641	3.641	3.64	3.631	3.561	3.427
1967	4.374	4.374	4.372	4.365	4.36	3.905
1968	4.895	4.895	4.893	4.884	4.861	4.538
1969	5.523	5.523	5.521	5.514	5.511	5.089
1970	5.944	5.944	5.942	5.931	5.92	5.575
1971	5.893	5.891	5.883	5.866	5.853	5.789
1972	6.354	6.354	6.351	6.346	6.338	5.943
1973	6.695	6.694	6.689	6.666	6.648	6.416
1974	6.703	6.702	6.699	6.687	6.677	6.588
1975	6.698	6.698	6.692	6.677	6.674	6.602

1976	7.404	7.404	7.402	7.387	7.382	6.933
1977	7.786	7.786	7.783	7.779	7.773	7.426
1978	8.008	8.007	8	7.986	7.984	7.777
1979	8.185	8.185	8.182	8.164	8.151	7.922
1980	8.199	8.199	8.192	8.172	8.166	8.05
1981	8.739	8.739	8.735	8.716	8.704	8.265
1982	9.026	9.025	9.023	9.007	8.997	8.694
1983	9.421	9.421	9.414	9.385	9.363	9.055
1984	9.415	9.414	9.406	9.36	9.322	9.195
1985	9.116	9.115	9.107	9.071	9.042	8.985
1986	9.308	9.308	9.302	9.29	9.274	9.002
1987	9.169	9.166	9.154	9.126	9.106	9.019
1988	9.024	9.024	9.018	8.998	8.984	8.9
1989	9.222	9.221	9.216	9.193	9.173	8.918
1990	9.358	9.358	9.355	9.344	9.326	9.083

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	9.421	9.421	9.414	9.385	9.363	9.195
0.0645161290322581	9.415	9.414	9.406	9.36	9.326	9.083
0.0967741935483871	9.358	9.358	9.355	9.344	9.322	9.055
0.129032258064516	9.308	9.308	9.302	9.29	9.274	9.019
0.161290322580645	9.222	9.221	9.216	9.193	9.173	9.002
0.193548387096774	9.169	9.166	9.154	9.126	9.106	8.985
0.225806451612903	9.116	9.115	9.107	9.071	9.042	8.918
0.258064516129032	9.026	9.025	9.023	9.007	8.997	8.9
0.290322580645161	9.024	9.024	9.018	8.998	8.984	8.694
0.32258064516129	8.739	8.739	8.735	8.716	8.704	8.265
0.354838709677419	8.199	8.199	8.192	8.172	8.166	8.05
0.387096774193548	8.185	8.185	8.182	8.164	8.151	7.922
0.419354838709677	8.008	8.007	8	7.986	7.984	7.777
0.451612903225806	7.786	7.786	7.783	7.779	7.773	7.426
0.483870967741936	7.404	7.404	7.402	7.387	7.382	6.933
0.516129032258065	6.703	6.702	6.699	6.687	6.677	6.602
0.548387096774194	6.698	6.698	6.692	6.677	6.674	6.588
0.580645161290323	6.695	6.694	6.689	6.666	6.648	6.416
0.612903225806452	6.354	6.354	6.351	6.346	6.338	5.943
0.645161290322581	5.944	5.944	5.942	5.931	5.92	5.789
0.67741935483871	5.893	5.891	5.883	5.866	5.853	5.575
0.709677419354839	5.523	5.523	5.521	5.514	5.511	5.089
0.741935483870968	4.895	4.895	4.893	4.884	4.861	4.538
0.774193548387097	4.374	4.374	4.372	4.365	4.36	3.905
0.806451612903226	3.641	3.641	3.64	3.631	3.561	3.427
0.838709677419355	3.462	3.462	3.461	3.454	3.45	3.224
0.870967741935484	3.147	3.146	3.137	3.129	3.092	2.809
0.903225806451613	2.662	2.662	2.661	2.653	2.64	2.155
0.935483870967742	1.886	1.886	1.886	1.879	1.866	1.286
0.967741935483871	0.8193	0.8191	0.8177	0.812	0.8102	0.3024
0.1	9.353	9.353	9.3497	9.3386	9.3172	9.0514

Average of yearly averages: 6.36241333333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoMEpotatoPondGrB
Metfile: w14607.dvf
PRZM scenario: MEpotatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol		150	mg/L	

Kd	Kd		mg/L			
Koc	Koc	5381	mg/L			
Photolysis half-life		kdp	228	days	Half-life	
Aerobic Aquatic Metabolism			kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism			kbacs	1110	days	Halfife
Aerobic Soil Metabolism			asm	313	days	Halfife
Hydrolysis:		pH 7	0	days	Half-life	
Method:	CAM	2	integer	See PRZM manual		
Incorporation Depth:		DEPI	0	cm		
Application Rate:		TAPP	0.12	kg/ha		
Application Efficiency:			APPEFF	0.99	fraction	
Spray Drift		DRFT	0.01	fraction of application rate applied to pond		
Application Date		Date	20-06	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1	interval	7	days	Set to 0 or delete line for single app.		
Interval 2	interval	7	days	Set to 0 or delete line for single app.		
Interval 3	interval	7	days	Set to 0 or delete line for single app.		
Record 17:	FILTRA					
	IPSCND	1				
	UPTKF					
Record 18:	PLVKRT					
	PLDKRT					
	FEXTRC	0.5				
Flag for Index Res. Run			IR	Pond		
Flag for runoff calc.		RUNOFF	none	none, monthly or total(average of entire run)		

Aerial Application to NC Sweet Potato:

stored as difenoNCSweetPotPondAir.out
Chemical: difenoconazole
PRZM environment: NCSweetPotatoC.txt modified Friday, 8 August 2003 at 08:25:48
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w13722.dvf modified Wedday, 3 July 2002 at 09:05:50
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.335	1.148	0.8143	0.6806	0.6613	0.3458
1962	3.25	2.926	2.48	2.086	1.945	1.324
1963	3.481	3.221	2.647	2.327	2.202	1.93
1964	3.665	3.499	3.272	3.184	3.092	2.585
1965	5.674	5.373	4.635	4.466	4.283	3.519
1966	5.346	5.136	4.841	4.541	4.492	4.084
1967	6.788	6.427	5.96	5.416	5.312	4.641
1968	6.751	6.461	5.85	5.474	5.368	5.023
1969	6.512	6.355	6.022	5.744	5.681	5.308
1970	7.619	7.245	6.582	6.183	6.027	5.576
1971	7.14	6.891	6.643	6.29	6.206	5.847
1972	8.279	7.87	7.175	6.888	6.735	6.178
1973	10.25	9.665	8.668	7.768	7.508	6.708
1974	7.805	7.597	7.161	6.923	6.876	6.693
1975	9.286	8.932	7.956	7.25	7.114	6.709
1976	7.801	7.538	7.184	6.806	6.701	6.541
1977	7.624	7.411	6.943	6.766	6.702	6.474
1978	8.301	7.992	7.369	7.191	7.049	6.656
1979	8.128	7.871	7.543	7.188	7.118	6.739
1980	9.67	9.341	8.17	7.436	7.295	6.853
1981	9.277	8.947	8.115	7.555	7.407	6.929
1982	8.172	7.961	7.61	7.388	7.253	6.949
1983	7.162	7.054	6.963	6.766	6.741	6.589
1984	8.399	8.215	7.63	7.167	7.002	6.593
1985	7.761	7.531	7.079	6.99	6.915	6.591
1986	8.49	8.141	7.464	7.044	6.905	6.556
1987	7.866	7.6	7.248	6.82	6.703	6.54
1988	7.145	7.013	6.795	6.542	6.496	6.364
1989	7.265	7.104	6.861	6.73	6.699	6.384

1990	6.499	6.403	6.314	6.238	6.217	6.049

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	10.25	9.665	8.668	7.768	7.508	6.949
0.0645161290322581	9.67	9.341	8.17	7.555	7.407	6.929
0.0967741935483871	9.286	8.947	8.115	7.436	7.295	6.853
0.129032258064516	9.277	8.932	7.956	7.388	7.253	6.739
0.161290322580645	8.49	8.215	7.63	7.25	7.118	6.709
0.193548387096774	8.399	8.141	7.61	7.191	7.114	6.708
0.225806451612903	8.301	7.992	7.543	7.188	7.049	6.693
0.258064516129032	8.279	7.961	7.464	7.167	7.002	6.656
0.290322580645161	8.172	7.871	7.369	7.044	6.915	6.593
0.32258064516129	8.128	7.87	7.248	6.99	6.905	6.591
0.354838709677419	7.866	7.6	7.184	6.923	6.876	6.589
0.387096774193548	7.805	7.597	7.175	6.888	6.741	6.556
0.419354838709677	7.801	7.538	7.161	6.82	6.735	6.541
0.451612903225806	7.761	7.531	7.079	6.806	6.703	6.54
0.483870967741936	7.624	7.411	6.963	6.766	6.702	6.474
0.516129032258065	7.619	7.245	6.943	6.766	6.701	6.384
0.548387096774194	7.265	7.104	6.861	6.73	6.699	6.364
0.580645161290323	7.162	7.054	6.795	6.542	6.496	6.178
0.612903225806452	7.145	7.013	6.643	6.29	6.217	6.049
0.645161290322581	7.14	6.891	6.582	6.238	6.206	5.847
0.67741935483871	6.788	6.461	6.314	6.183	6.027	5.576
0.709677419354839	6.751	6.427	6.022	5.744	5.681	5.308
0.741935483870968	6.512	6.403	5.96	5.474	5.368	5.023
0.774193548387097	6.499	6.355	5.85	5.416	5.312	4.641
0.806451612903226	5.674	5.373	4.841	4.541	4.492	4.084
0.838709677419355	5.346	5.136	4.635	4.466	4.283	3.519
0.870967741935484	3.665	3.499	3.272	3.184	3.092	2.585
0.903225806451613	3.481	3.221	2.647	2.327	2.202	1.93
0.935483870967742	3.25	2.926	2.48	2.086	1.945	1.324
0.967741935483871	1.335	1.148	0.8143	0.6806	0.6613	0.3458
0.1	9.2851	8.9455	8.0991	7.4312	7.2908	6.8416

Average of yearly averages: 5.50926

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoNCSweetPotPondAir
Metfile: w13722.dvf
PRZM scenario: NCSweetPotatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:	APPEFF	0.95	fraction	
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	05-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	

Interval 2	interval	7	days	Set to 0 or delete line for single app.
Interval 3	interval	7	days	Set to 0 or delete line for single app.
Record 17:	FILTRA			
	IPSCND	1		
	UPTKF			
Record 18:	PLVKRT			
	PLDKRT			
	FEXTRC	0.5		
Flag for Index Res. Run			IR	Pond
Flag for runoff calc.	RUNOFF		none	none, monthly or total(average of entire run)

Ground Application to NC Sweet Potato:

stored as difenoNCSweetPotPondGr.out
Chemical: difenoconazole
PRZM environment: NCSweetPotatoC.txt modified Friday, 8 August 2003 at 08:25:48
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w13722.dvf modified Wedday, 3 July 2002 at 09:05:50
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.9107	0.8531	0.7248	0.5891	0.5501	0.274
1962	2.998	2.69	2.23	1.861	1.742	1.186
1963	3.323	3.052	2.454	2.122	1.99	1.723
1964	3.428	3.261	3.02	2.932	2.837	2.325
1965	5.278	4.995	4.277	4.077	3.925	3.228
1966	4.916	4.759	4.521	4.216	4.127	3.757
1967	6.286	5.949	5.416	4.975	4.9	4.285
1968	6.329	6.042	5.395	5.054	4.958	4.637
1969	6.116	5.957	5.613	5.332	5.271	4.893
1970	7.146	6.772	6.119	5.732	5.58	5.133
1971	6.578	6.359	6.073	5.78	5.713	5.386
1972	7.591	7.221	6.512	6.341	6.21	5.706
1973	9.608	9.032	8.079	7.24	7	6.235
1974	7.339	7.123	6.673	6.434	6.339	6.204
1975	8.809	8.445	7.451	6.74	6.608	6.203
1976	7.33	7.059	6.691	6.302	6.196	6.019
1977	7.135	6.914	6.43	6.237	6.178	5.938
1978	7.585	7.343	6.794	6.593	6.451	6.12
1979	7.582	7.333	6.999	6.647	6.583	6.199
1980	9.024	8.58	7.493	6.835	6.717	6.313
1981	8.66	8.331	7.509	6.989	6.853	6.39
1982	7.393	7.222	6.839	6.727	6.625	6.405
1983	6.515	6.448	6.299	6.246	6.225	6.026
1984	7.833	7.651	7.055	6.554	6.4	6.025
1985	7.139	6.95	6.496	6.376	6.28	6.02
1986	7.992	7.63	6.928	6.484	6.339	5.986
1987	7.352	7.076	6.712	6.273	6.156	5.972
1988	6.6	6.464	6.236	5.98	5.936	5.786
1989	6.71	6.543	6.172	6.027	6.031	5.804
1990	5.916	5.845	5.702	5.687	5.667	5.458

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	9.608	9.032	8.079	7.24	7	6.405
0.0645161290322581	9.024	8.58	7.509	6.989	6.853	6.39
0.0967741935483871	8.809	8.445	7.493	6.835	6.717	6.313
0.129032258064516	8.66	8.331	7.451	6.74	6.625	6.235
0.161290322580645	7.992	7.651	7.055	6.727	6.608	6.204
0.193548387096774	7.833	7.63	6.999	6.647	6.583	6.203
0.225806451612903	7.591	7.343	6.928	6.593	6.451	6.199
0.258064516129032	7.585	7.333	6.839	6.554	6.4	6.12
0.290322580645161	7.582	7.222	6.794	6.484	6.339	6.026
0.32258064516129	7.393	7.221	6.712	6.434	6.339	6.025
0.354838709677419	7.352	7.123	6.691	6.376	6.28	6.02

0.387096774193548	7.339	7.076	6.673	6.341	6.225	6.019
0.419354838709677	7.33	7.059	6.512	6.302	6.21	5.986
0.451612903225806	7.146	6.95	6.496	6.273	6.196	5.972
0.483870967741936	7.139	6.914	6.43	6.246	6.178	5.938
0.516129032258065	7.135	6.772	6.299	6.237	6.156	5.804
0.548387096774194	6.71	6.543	6.236	6.027	6.031	5.786
0.580645161290323	6.6	6.464	6.172	5.98	5.936	5.706
0.612903225806452	6.578	6.448	6.119	5.78	5.713	5.458
0.645161290322581	6.515	6.359	6.073	5.732	5.667	5.386
0.67741935483871	6.329	6.042	5.702	5.687	5.58	5.133
0.709677419354839	6.286	5.957	5.613	5.332	5.271	4.893
0.741935483870968	6.116	5.949	5.416	5.054	4.958	4.637
0.774193548387097	5.916	5.845	5.395	4.975	4.9	4.285
0.806451612903226	5.278	4.995	4.521	4.216	4.127	3.757
0.838709677419355	4.916	4.759	4.277	4.077	3.925	3.228
0.870967741935484	3.428	3.261	3.02	2.932	2.837	2.325
0.903225806451613	3.323	3.052	2.454	2.122	1.99	1.723
0.935483870967742	2.998	2.69	2.23	1.861	1.742	1.186
0.967741935483871	0.9107	0.8531	0.7248	0.5891	0.5501	0.274
0.1	8.7941	8.4336	7.4888	6.8255	6.7078	6.3052
				Average of yearly averages:		5.05453333333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoNCSweetPotPondGr
Metfile: w13722.dvf
PRZM scenario: NCSweetPotatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	05-06	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to NC Apples:

stored as difenoNCapplePondAir.out
Chemical: difenoconazole
PRZM environment: NCappleC.txt modified Satday, 12 October 2002 at 16:09:36
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w03812.dvf modified Wedday, 3 July 2002 at 09:05:50
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1965	0.6057	0.5247	0.3842	0.331	0.2973	0.1988
1966	1.135	1.039	0.8648	0.785	0.7643	0.5956
1967	1.92	1.788	1.497	1.292	1.244	1.027
1968	1.917	1.813	1.625	1.478	1.451	1.322
1969	2.717	2.498	2.022	1.779	1.721	1.536
1970	1.957	1.896	1.832	1.743	1.699	1.634
1971	2.124	2.067	1.942	1.866	1.848	1.733
1972	3.133	2.916	2.441	2.21	2.171	1.95
1973	4.849	4.439	3.45	2.918	2.867	2.448
1974	3.321	3.182	2.975	2.795	2.754	2.606
1975	3.537	3.394	3.193	2.978	2.895	2.702
1976	4.451	4.173	3.606	3.311	3.218	2.926
1977	3.451	3.351	3.224	3.096	3.086	2.979
1978	3.58	3.47	3.306	3.188	3.131	3.025
1979	3.396	3.324	3.277	3.179	3.131	3.008
1980	3.954	3.803	3.439	3.251	3.196	2.986
1981	4.284	4.131	3.793	3.384	3.287	3.021
1982	3.654	3.538	3.375	3.194	3.174	3.058
1983	3.339	3.275	3.223	3.158	3.109	2.974
1984	3.787	3.647	3.414	3.249	3.198	3.019
1985	3.947	3.759	3.354	3.101	3.04	2.97
1986	3.565	3.433	3.165	3.049	2.996	2.93
1987	5.43	5.012	4.175	3.65	3.498	3.172
1988	3.502	3.439	3.379	3.286	3.23	3.115
1989	4.021	3.846	3.55	3.462	3.415	3.184
1990	4.166	4.008	3.622	3.4	3.371	3.244

Sorted results

Prob.		Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.037037037037037	5.43	5.012	4.175	3.65	3.498	3.244	
0.0740740740740741	4.849	4.439	3.793	3.462	3.415	3.184	
0.111111111111111	4.451	4.173	3.622	3.4	3.371	3.172	
0.148148148148148	4.284	4.131	3.606	3.384	3.287	3.115	
0.185185185185185	4.166	4.008	3.55	3.311	3.23	3.058	
0.222222222222222	4.021	3.846	3.45	3.286	3.218	3.025	
0.259259259259259	3.954	3.803	3.439	3.251	3.198	3.021	
0.296296296296296	3.947	3.759	3.414	3.249	3.196	3.019	
0.333333333333333	3.787	3.647	3.379	3.194	3.174	3.008	
0.37037037037037	3.654	3.538	3.375	3.188	3.131	2.986	
0.407407407407407	3.58	3.47	3.354	3.179	3.131	2.979	
0.444444444444444	3.565	3.439	3.306	3.158	3.109	2.974	
0.481481481481481	3.537	3.433	3.277	3.101	3.086	2.97	
0.518518518518518	3.502	3.394	3.224	3.096	3.04	2.93	
0.555555555555556	3.451	3.351	3.223	3.049	2.996	2.926	
0.592592592592593	3.396	3.324	3.193	2.978	2.895	2.702	
0.62962962962963	3.339	3.275	3.165	2.918	2.867	2.606	
0.666666666666667	3.321	3.182	2.975	2.795	2.754	2.448	
0.703703703703704	3.133	2.916	2.441	2.21	2.171	1.95	
0.740740740740741	2.717	2.498	2.022	1.866	1.848	1.733	
0.777777777777778	2.124	2.067	1.942	1.779	1.721	1.634	
0.814814814814815	1.957	1.896	1.832	1.743	1.699	1.536	
0.851851851851852	1.92	1.813	1.625	1.478	1.451	1.322	
0.888888888888889	1.917	1.788	1.497	1.292	1.244	1.027	
0.925925925925926	1.135	1.039	0.8648	0.785	0.7643	0.5956	
0.962962962962963	0.6057	0.5247	0.3842	0.331	0.2973	0.1988	
0.1		4.5704	4.2528	3.6733	3.4186	3.3842	3.1756

Average of yearly averages: 2.43705384615385

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoNCapplePondAir
Metfile: w03812.dvf
PRZM scenario: NCappleC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.08	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	14-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Interval 4 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to NC Apples:

stored as difenoNCapplePondGr.out
Chemical: difenoconazole
PRZM environment: NCappleC.txt modified Satday, 12 October 2002 at 16:09:36
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w03812.dvf modified Wedday, 3 July 2002 at 09:05:50
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1965	0.4405	0.3727	0.2679	0.2149	0.2021	0.1216
1966	0.9925	0.8933	0.7112	0.6269	0.6098	0.4439
1967	1.733	1.595	1.293	1.081	1.032	0.8117
1968	1.655	1.547	1.353	1.203	1.17	1.048
1969	2.429	2.202	1.708	1.459	1.4	1.21
1970	1.571	1.522	1.384	1.304	1.279	1.258
1971	1.616	1.556	1.436	1.385	1.372	1.314
1972	2.707	2.482	1.99	1.757	1.683	1.499
1973	4.403	3.986	2.979	2.443	2.398	1.981
1974	2.589	2.494	2.326	2.222	2.194	2.115
1975	2.887	2.752	2.593	2.402	2.327	2.185
1976	3.91	3.629	3.056	2.747	2.658	2.39

1977	2.926	2.822	2.689	2.561	2.552	2.421
1978	3.027	2.912	2.671	2.535	2.488	2.452
1979	2.642	2.587	2.512	2.481	2.46	2.419
1980	3.203	3.075	2.76	2.594	2.528	2.383
1981	3.671	3.514	3.165	2.754	2.646	2.408
1982	3.048	2.928	2.762	2.577	2.53	2.435
1983	2.497	2.472	2.426	2.409	2.389	2.337
1984	2.948	2.842	2.605	2.519	2.496	2.372
1985	3.33	3.135	2.716	2.459	2.4	2.31
1986	2.929	2.792	2.516	2.349	2.329	2.263
1987	4.803	4.374	3.517	2.987	2.836	2.511
1988	2.585	2.568	2.544	2.527	2.517	2.445
1989	3.228	3.1	2.864	2.714	2.688	2.509
1990	3.534	3.37	2.971	2.746	2.72	2.567

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.037037037037037	4.803	4.374	3.517	2.987	2.836	2.567
0.0740740740740741	4.403	3.986	3.165	2.754	2.72	2.511
0.111111111111111	3.91	3.629	3.056	2.747	2.688	2.509
0.148148148148148	3.671	3.514	2.979	2.746	2.658	2.452
0.185185185185185	3.534	3.37	2.971	2.714	2.646	2.445
0.222222222222222	3.33	3.135	2.864	2.594	2.552	2.435
0.259259259259259	3.228	3.1	2.762	2.577	2.53	2.421
0.296296296296296	3.203	3.075	2.76	2.561	2.528	2.419
0.333333333333333	3.048	2.928	2.716	2.535	2.517	2.408
0.37037037037037	3.027	2.912	2.689	2.527	2.496	2.39
0.407407407407407	2.948	2.842	2.671	2.519	2.488	2.383
0.444444444444444	2.929	2.822	2.605	2.481	2.46	2.372
0.481481481481481	2.926	2.792	2.593	2.459	2.4	2.337
0.518518518518518	2.887	2.752	2.544	2.443	2.398	2.31
0.555555555555556	2.707	2.587	2.516	2.409	2.389	2.263
0.592592592592593	2.642	2.568	2.512	2.402	2.329	2.185
0.62962962962963	2.589	2.494	2.426	2.349	2.327	2.115
0.666666666666667	2.585	2.482	2.326	2.222	2.194	1.981
0.703703703703704	2.497	2.472	1.99	1.757	1.683	1.499
0.740740740740741	2.429	2.202	1.708	1.459	1.4	1.314
0.777777777777778	1.733	1.595	1.436	1.385	1.372	1.258
0.814814814814815	1.655	1.556	1.384	1.304	1.279	1.21
0.851851851851852	1.616	1.547	1.353	1.203	1.17	1.048
0.888888888888889	1.571	1.522	1.293	1.081	1.032	0.8117
0.925925925925926	0.9925	0.8933	0.7112	0.6269	0.6098	0.4439
0.962962962962963	0.4405	0.3727	0.2679	0.2149	0.2021	0.1216
0.1	4.0579	3.7361	3.0887	2.7491	2.6976	2.5096

Average of yearly averages: 1.93112307692308

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoNCapplePondGr
Metfile: w03812.dvf
PRZM scenario: NCappleC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife

Aerobic Soil Metabolism		asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life	
Method: CAM	2	integer	See PRZM manual		
Incorporation Depth:	DEPI	0	cm		
Application Rate:	TAPP	0.08	kg/ha		
Application Efficiency:		APPEFF	0.99	fraction	
Spray Drift	DRFT	0.01	fraction of application rate applied to pond		
Application Date	Date	14-04	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1 interval	7	days	Set to 0 or delete line for single app.		
Interval 2 interval	7	days	Set to 0 or delete line for single app.		
Interval 3 interval	7	days	Set to 0 or delete line for single app.		
Interval 4 interval	7	days	Set to 0 or delete line for single app.		
Record 17: FILTRA					
IPSCND	1				
UPTKF					
Record 18: PLVKRT					
PLDKRT					
FEXTRC	0.5				
Flag for Index Res. Run		IR	Pond		
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)		

Aerial Application to OR Apples:

stored as difenoORapplePondAir.out
Chemical: difenoconazole
PRZM environment: ORappleC.txt modified Satday, 12 October 2002 at 16:16:34
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w24229.dvf modified Wedday, 3 July 2002 at 09:06:10
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.437	0.3771	0.3095	0.2228	0.1899	0.1069
1962	0.6245	0.5741	0.4964	0.4149	0.3759	0.2882
1963	0.8257	0.765	0.7009	0.6138	0.5773	0.4878
1964	1.154	1.099	0.8549	0.7619	0.7261	0.6506
1965	1.177	1.117	1.051	0.963	0.925	0.8417
1966	1.314	1.253	1.187	1.099	1.062	0.9871
1967	1.433	1.372	1.307	1.217	1.178	1.084
1968	1.524	1.479	1.408	1.315	1.274	1.196
1969	1.648	1.587	1.522	1.433	1.394	1.319
1970	1.789	1.728	1.663	1.573	1.53	1.443
1971	1.849	1.788	1.723	1.634	1.592	1.506
1972	1.913	1.852	1.787	1.698	1.654	1.562
1973	2.052	1.969	1.816	1.726	1.683	1.612
1974	2.07	2.009	1.944	1.853	1.81	1.723
1975	2.117	2.056	1.991	1.901	1.858	1.762
1976	2.114	2.053	1.988	1.899	1.856	1.751
1977	2.066	2.008	1.942	1.851	1.808	1.737
1978	2.156	2.094	2.034	1.937	1.892	1.786
1979	2.119	2.057	1.994	1.904	1.858	1.76
1980	2.23	2.153	2.028	1.943	1.9	1.828
1981	2.255	2.194	2.13	2.044	2	1.912
1982	2.293	2.232	2.168	2.076	2.031	1.959
1983	2.357	2.295	2.232	2.141	2.097	2.009
1984	2.351	2.289	2.224	2.138	2.095	1.999
1985	2.335	2.284	2.232	2.155	2.108	1.99
1986	2.314	2.252	2.188	2.097	2.051	1.965
1987	2.367	2.313	2.216	2.124	2.079	1.994
1988	2.382	2.321	2.258	2.171	2.125	2.021
1989	2.367	2.302	2.228	2.134	2.088	1.983
1990	2.323	2.261	2.197	2.108	2.062	1.958

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	2.382	2.321	2.258	2.171	2.125	2.021
0.0645161290322581	2.367	2.313	2.232	2.155	2.108	2.009
0.0967741935483871	2.367	2.302	2.232	2.141	2.097	1.999
0.129032258064516	2.357	2.295	2.228	2.138	2.095	1.994
0.161290322580645	2.351	2.289	2.224	2.134	2.088	1.99
0.193548387096774	2.335	2.284	2.216	2.124	2.079	1.983
0.225806451612903	2.323	2.261	2.197	2.108	2.062	1.965
0.258064516129032	2.314	2.252	2.188	2.097	2.051	1.959
0.290322580645161	2.293	2.232	2.168	2.076	2.031	1.958
0.32258064516129	2.255	2.194	2.13	2.044	2	1.912
0.354838709677419	2.23	2.153	2.034	1.943	1.9	1.828
0.387096774193548	2.156	2.094	2.028	1.937	1.892	1.786
0.419354838709677	2.119	2.057	1.994	1.904	1.858	1.762
0.451612903225806	2.117	2.056	1.991	1.901	1.858	1.76
0.483870967741936	2.114	2.053	1.988	1.899	1.856	1.751
0.516129032258065	2.07	2.009	1.944	1.853	1.81	1.737
0.548387096774194	2.066	2.008	1.942	1.851	1.808	1.723
0.580645161290323	2.052	1.969	1.816	1.726	1.683	1.612
0.612903225806452	1.913	1.852	1.787	1.698	1.654	1.562
0.645161290322581	1.849	1.788	1.723	1.634	1.592	1.506
0.67741935483871	1.789	1.728	1.663	1.573	1.53	1.443
0.709677419354839	1.648	1.587	1.522	1.433	1.394	1.319
0.741935483870968	1.524	1.479	1.408	1.315	1.274	1.196
0.774193548387097	1.433	1.372	1.307	1.217	1.178	1.084
0.806451612903226	1.314	1.253	1.187	1.099	1.062	0.9871
0.838709677419355	1.177	1.117	1.051	0.963	0.925	0.8417
0.870967741935484	1.154	1.099	0.8549	0.7619	0.7261	0.6506
0.903225806451613	0.8257	0.765	0.7009	0.6138	0.5773	0.4878
0.935483870967742	0.6245	0.5741	0.4964	0.4149	0.3759	0.2882
0.967741935483871	0.437	0.3771	0.3095	0.2228	0.1899	0.1069
0.1	2.366	2.3013	2.2316	2.1407	2.0968	1.9985
				Average of yearly averages:		1.50737666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoORapplePondAir
Metfile: w24229.dvf
PRZM scenario: ORappleC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.08	kg/ha	
Application Efficiency:	APPEFF	0.95	fraction	
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	01-05	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Interval 4 interval	7	days	Set to 0 or delete line for single app.	

Record 17: FILTRA
IPSCND 1
UPTKF
Record 18: PLVKRT
PLDKRT
FEXTRC 0.5

Flag for Index Res. Run		IR	Pond
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)

Ground Application to OR Apples:

stored as difenoORapplePondGr.out
Chemical: difenoconazole
PRZM environment: ORappleC.txt modified Satday, 12 October 2002 at 16:16:34
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w24229.dvf modified Wedday, 3 July 2002 at 09:06:10
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.1912	0.17	0.115	0.08526	0.06639	0.02996
1962	0.465	0.4126	0.3317	0.2468	0.2055	0.1264
1963	0.4136	0.3862	0.3256	0.2979	0.2801	0.2512
1964	0.8649	0.8078	0.5529	0.4275	0.3897	0.3447
1965	0.7843	0.7482	0.544	0.5125	0.4891	0.4757
1966	0.7778	0.7506	0.68	0.6437	0.6054	0.5688
1967	0.7244	0.7016	0.6619	0.6429	0.6322	0.6185
1968	0.8629	0.8386	0.8116	0.7695	0.7418	0.6905
1969	0.9601	0.9242	0.879	0.8392	0.8099	0.7745
1970	1.065	1.026	0.953	0.9158	0.8979	0.866
1971	1.046	1.019	0.9598	0.917	0.9066	0.8971
1972	1.122	1.104	1.015	0.9544	0.9484	0.9258
1973	1.425	1.34	1.167	1.074	1.013	0.9526
1974	1.276	1.252	1.16	1.092	1.075	1.044
1975	1.205	1.179	1.137	1.11	1.097	1.063
1976	1.112	1.099	1.085	1.066	1.057	1.03
1977	1.33	1.293	1.198	1.083	1.043	0.9953
1978	1.124	1.108	1.096	1.07	1.057	1.031
1979	1.083	1.051	1.04	1.021	1.01	0.9902
1980	1.495	1.414	1.253	1.167	1.103	1.052
1981	1.329	1.299	1.232	1.164	1.149	1.13
1982	1.406	1.369	1.295	1.237	1.214	1.171
1983	1.407	1.366	1.296	1.252	1.238	1.217
1984	1.433	1.388	1.288	1.247	1.217	1.2
1985	1.398	1.368	1.282	1.236	1.22	1.184
1986	1.359	1.316	1.219	1.17	1.171	1.153
1987	1.599	1.543	1.432	1.241	1.207	1.18
1988	1.322	1.302	1.258	1.246	1.234	1.205
1989	1.261	1.244	1.223	1.199	1.192	1.161
1990	1.265	1.245	1.201	1.185	1.172	1.133

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	1.599	1.543	1.432	1.252	1.238	1.217
0.0645161290322581	1.495	1.414	1.296	1.247	1.234	1.205
0.0967741935483871	1.433	1.388	1.295	1.246	1.22	1.2
0.129032258064516	1.425	1.369	1.288	1.241	1.217	1.184
0.161290322580645	1.407	1.368	1.282	1.237	1.214	1.18
0.193548387096774	1.406	1.366	1.258	1.236	1.207	1.171
0.225806451612903	1.398	1.34	1.253	1.199	1.192	1.161
0.258064516129032	1.359	1.316	1.232	1.185	1.172	1.153
0.290322580645161	1.33	1.302	1.223	1.17	1.171	1.133
0.32258064516129	1.329	1.299	1.219	1.167	1.149	1.13
0.354838709677419	1.322	1.293	1.201	1.164	1.103	1.063
0.387096774193548	1.276	1.252	1.198	1.11	1.097	1.052

0.419354838709677	1.265	1.245	1.167	1.092	1.075	1.044
0.451612903225806	1.261	1.244	1.16	1.083	1.057	1.031
0.483870967741936	1.205	1.179	1.137	1.074	1.057	1.03
0.516129032258065	1.124	1.108	1.096	1.07	1.043	0.9953
0.548387096774194	1.122	1.104	1.085	1.066	1.013	0.9902
0.580645161290323	1.112	1.099	1.04	1.021	1.01	0.9526
0.612903225806452	1.083	1.051	1.015	0.9544	0.9484	0.9258
0.645161290322581	1.065	1.026	0.9598	0.917	0.9066	0.8971
0.67741935483871	1.046	1.019	0.953	0.9158	0.8979	0.866
0.709677419354839	0.9601	0.9242	0.879	0.8392	0.8099	0.7745
0.741935483870968	0.8649	0.8386	0.8116	0.7695	0.7418	0.6905
0.774193548387097	0.8629	0.8078	0.68	0.6437	0.6322	0.6185
0.806451612903226	0.7843	0.7506	0.6619	0.6429	0.6054	0.5688
0.838709677419355	0.7778	0.7482	0.5529	0.5125	0.4891	0.4757
0.870967741935484	0.7244	0.7016	0.544	0.4275	0.3897	0.3447
0.903225806451613	0.465	0.4126	0.3317	0.2979	0.2801	0.2512
0.935483870967742	0.4136	0.3862	0.3256	0.2468	0.2055	0.1264
0.967741935483871	0.1912	0.17	0.115	0.08526	0.06639	0.02996
0.1	1.4322	1.3861	1.2943	1.2455	1.2197	1.1984
				Average of yearly averages:		0.882042

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoORapplePondGr
Metfile: w24229.dvf
PRZM scenario: ORappleC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.08	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	01-05	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Interval 4 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to CA Tomato:

stored as difenoCAtomatoPondAir.out

Chemical: difenoconazole
PRZM environment: CAtomato_NirrigC.txt modified Tueday, 8 June 2004 at 11:42:50
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w93193.dvf modified Wedday, 3 July 2002 at 09:04:24
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.6787	0.5978	0.4467	0.3096	0.2546	0.109
1962	1.328	1.199	0.8428	0.6634	0.6239	0.5005
1963	1.322	1.207	1.097	0.9621	0.927	0.83
1964	1.435	1.348	1.223	1.11	1.058	0.9456
1965	1.592	1.502	1.394	1.258	1.208	1.125
1966	2.529	2.305	1.837	1.446	1.351	1.223
1967	1.929	1.838	1.732	1.591	1.536	1.469
1968	2.24	2.112	1.871	1.757	1.692	1.512
1969	4.159	3.788	3.082	2.721	2.58	2.27
1970	3.372	3.166	2.745	2.516	2.457	2.33
1971	2.73	2.638	2.536	2.39	2.343	2.295
1972	3.112	2.983	2.658	2.418	2.309	2.23
1973	2.816	2.726	2.538	2.431	2.396	2.31
1974	2.739	2.668	2.489	2.37	2.34	2.267
1975	2.612	2.521	2.416	2.271	2.223	2.171
1976	3.651	3.394	2.873	2.588	2.523	2.36
1977	2.887	2.767	2.538	2.406	2.391	2.32
1978	3.485	3.388	3.005	2.789	2.735	2.598
1979	2.866	2.775	2.672	2.589	2.564	2.445
1980	3.402	3.246	2.901	2.708	2.659	2.482
1981	3.045	2.922	2.689	2.531	2.492	2.351
1982	3.131	3.009	2.68	2.621	2.533	2.35
1983	3.903	3.678	3.381	3.078	2.984	2.788
1984	2.929	2.837	2.736	2.654	2.64	2.535
1985	2.748	2.657	2.554	2.446	2.432	2.371
1986	3.541	3.332	2.805	2.662	2.599	2.45
1987	3.001	2.937	2.732	2.602	2.573	2.438
1988	2.698	2.607	2.504	2.356	2.317	2.279
1989	2.636	2.545	2.441	2.329	2.283	2.219
1990	2.946	2.836	2.531	2.364	2.311	2.206

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	4.159	3.788	3.381	3.078	2.984	2.788
0.0645161290322581	3.903	3.678	3.082	2.789	2.735	2.598
0.0967741935483871	3.651	3.394	3.005	2.721	2.659	2.535
0.129032258064516	3.541	3.388	2.901	2.708	2.64	2.482
0.161290322580645	3.485	3.332	2.873	2.662	2.599	2.45
0.193548387096774	3.402	3.246	2.805	2.654	2.58	2.445
0.225806451612903	3.372	3.166	2.745	2.621	2.573	2.438
0.258064516129032	3.131	3.009	2.736	2.602	2.564	2.371
0.290322580645161	3.112	2.983	2.732	2.589	2.533	2.36
0.32258064516129	3.045	2.937	2.689	2.588	2.523	2.351
0.354838709677419	3.001	2.922	2.68	2.531	2.492	2.35
0.387096774193548	2.946	2.837	2.672	2.516	2.457	2.33
0.419354838709677	2.929	2.836	2.658	2.446	2.432	2.32
0.451612903225806	2.887	2.775	2.554	2.431	2.396	2.31
0.483870967741936	2.866	2.767	2.538	2.418	2.391	2.295
0.516129032258065	2.816	2.726	2.538	2.406	2.343	2.279
0.548387096774194	2.748	2.668	2.536	2.39	2.34	2.27
0.580645161290323	2.739	2.657	2.531	2.37	2.317	2.267
0.612903225806452	2.73	2.638	2.504	2.364	2.311	2.23
0.645161290322581	2.698	2.607	2.489	2.356	2.309	2.219
0.67741935483871	2.636	2.545	2.441	2.329	2.283	2.206
0.709677419354839	2.612	2.521	2.416	2.271	2.223	2.171
0.741935483870968	2.529	2.305	1.871	1.757	1.692	1.512
0.774193548387097	2.24	2.112	1.837	1.591	1.536	1.469
0.806451612903226	1.929	1.838	1.732	1.446	1.351	1.223

0.838709677419355	1.592	1.502	1.394	1.258	1.208	1.125
0.870967741935484	1.435	1.348	1.223	1.11	1.058	0.9456
0.903225806451613	1.328	1.207	1.097	0.9621	0.927	0.83
0.935483870967742	1.322	1.199	0.8428	0.6634	0.6239	0.5005
0.967741935483871	0.6787	0.5978	0.4467	0.3096	0.2546	0.109
0.1	3.64	3.3934	2.9946	2.7197	2.6571	2.5297
				Average of yearly averages:		1.99263666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoCAtomatoPondAir
Metfile: w93193.dvf
PRZM scenario: CAtomato_NirrigC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	01-08	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to CA Tomato:

stored as difenoCAtomatoPondGr.out
Chemical: difenoconazole
PRZM environment: CAtomato_NirrigC.txt modified Tueday, 8 June 2004 at 11:42:50
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w93193.dvf modified Wedday, 3 July 2002 at 09:04:24
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.5881	0.5038	0.3462	0.2033	0.1452	0.04507
1962	1.267	1.132	0.7609	0.5015	0.4434	0.3431
1963	1.16	1.033	0.8909	0.6965	0.6739	0.5929
1964	1.111	1.021	0.8913	0.7744	0.7194	0.6331
1965	1.127	1.054	0.8962	0.8166	0.7863	0.7529
1966	2.142	1.909	1.422	1.013	0.9109	0.7987

1967	1.314	1.276	1.15	1.079	1.061	1.009
1968	1.758	1.625	1.375	1.259	1.189	1.016
1969	3.767	3.381	2.646	2.271	2.127	1.77
1970	2.913	2.699	2.261	2.025	1.966	1.804
1971	2.027	1.961	1.876	1.835	1.821	1.742
1972	2.566	2.431	2.094	1.845	1.729	1.653
1973	2.269	2.176	1.981	1.874	1.835	1.719
1974	2.169	2.095	1.91	1.788	1.76	1.661
1975	1.748	1.724	1.671	1.637	1.628	1.547
1976	3.096	2.829	2.286	1.954	1.889	1.726
1977	2.274	2.149	1.909	1.781	1.767	1.675
1978	2.909	2.807	2.41	2.189	2.132	1.967
1979	2.135	2.106	2.018	1.973	1.95	1.808
1980	2.826	2.664	2.307	2.102	2.054	1.848
1981	2.448	2.321	2.08	1.918	1.88	1.713
1982	2.526	2.399	2.056	1.992	1.897	1.709
1983	3.336	3.102	2.794	2.482	2.387	2.16
1984	2.116	2.081	2.047	2.038	2.027	1.905
1985	2.02	1.976	1.861	1.832	1.82	1.741
1986	2.972	2.755	2.214	2.067	2.005	1.826
1987	2.412	2.346	2.132	2.001	1.973	1.815
1988	2.039	1.956	1.794	1.721	1.715	1.646
1989	1.807	1.771	1.708	1.663	1.668	1.582
1990	2.35	2.235	1.918	1.748	1.696	1.566

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	3.767	3.381	2.794	2.482	2.387	2.16
0.0645161290322581	3.336	3.102	2.646	2.271	2.132	1.967
0.0967741935483871	3.096	2.829	2.41	2.189	2.127	1.905
0.129032258064516	2.972	2.807	2.307	2.102	2.054	1.848
0.161290322580645	2.913	2.755	2.286	2.067	2.027	1.826
0.193548387096774	2.909	2.699	2.261	2.038	2.005	1.815
0.225806451612903	2.826	2.664	2.214	2.025	1.973	1.808
0.258064516129032	2.566	2.431	2.132	2.001	1.966	1.804
0.290322580645161	2.526	2.399	2.094	1.992	1.95	1.77
0.32258064516129	2.448	2.346	2.08	1.973	1.897	1.742
0.354838709677419	2.412	2.321	2.056	1.954	1.889	1.741
0.387096774193548	2.35	2.235	2.047	1.918	1.88	1.726
0.419354838709677	2.274	2.176	2.018	1.874	1.835	1.719
0.451612903225806	2.269	2.149	1.981	1.845	1.821	1.713
0.483870967741936	2.169	2.106	1.918	1.835	1.82	1.709
0.516129032258065	2.142	2.095	1.91	1.832	1.767	1.675
0.548387096774194	2.135	2.081	1.909	1.788	1.76	1.661
0.580645161290323	2.116	1.976	1.876	1.781	1.729	1.653
0.612903225806452	2.039	1.961	1.861	1.748	1.715	1.646
0.645161290322581	2.027	1.956	1.794	1.721	1.696	1.582
0.67741935483871	2.02	1.909	1.708	1.663	1.668	1.566
0.709677419354839	1.807	1.771	1.671	1.637	1.628	1.547
0.741935483870968	1.758	1.724	1.422	1.259	1.189	1.016
0.774193548387097	1.748	1.625	1.375	1.079	1.061	1.009
0.806451612903226	1.314	1.276	1.15	1.013	0.9109	0.7987
0.838709677419355	1.267	1.132	0.8962	0.8166	0.7863	0.7529
0.870967741935484	1.16	1.054	0.8913	0.7744	0.7194	0.6331
0.903225806451613	1.127	1.033	0.8909	0.6965	0.6739	0.5929
0.935483870967742	1.111	1.021	0.7609	0.5015	0.4434	0.3431
0.967741935483871	0.5881	0.5038	0.3462	0.2033	0.1452	0.04507
0.1	3.0836	2.8268	2.3997	2.1803	2.1197	1.8993

Average of yearly averages: 1.45912566666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoCAtomatoPondGr

Metfile: w93193.dvf
PRZM scenario: CAtomato_NirrigC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	01-08	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to FL Tomato:

stored as difenoFLtomatoPondAir.out
Chemical: difenoconazole
PRZM environment: FLtomatoC.txt modified Satday, 12 October 2002 at 15:44:04
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w12844.dvf modified Wedday, 3 July 2002 at 09:04:30
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.8922	0.7945	0.6774	0.4429	0.4045	0.2994
1962	1.973	1.713	1.265	1.089	1.082	0.8493
1963	2.862	2.66	2.099	1.75	1.661	1.345
1964	3.156	3.005	2.662	2.529	2.497	2.157
1965	4.136	3.853	3.487	3.132	2.973	2.624
1966	4.812	4.595	3.941	3.648	3.563	3.165
1967	4.084	3.922	3.633	3.419	3.38	3.244
1968	5.745	5.338	4.912	4.45	4.276	3.704
1969	5.446	5.159	4.602	4.262	4.187	3.967
1970	5.662	5.399	4.758	4.406	4.338	4.017
1971	4.975	4.789	4.257	4.128	4.024	3.797
1972	6.212	5.784	5.148	4.805	4.707	4.138
1973	4.556	4.427	4.199	4.074	4.051	3.91
1974	4.237	4.121	4.021	3.821	3.757	3.64
1975	4.302	4.122	3.806	3.643	3.554	3.442
1976	5.552	5.202	4.391	3.908	3.803	3.538
1977	6.094	5.635	4.99	4.71	4.465	3.972
1978	5.382	5.122	4.606	4.356	4.236	4.033
1979	7.984	7.282	5.775	5.063	4.865	4.368

1980	5.385	5.179	4.848	4.568	4.479	4.285
1981	4.957	4.798	4.381	4.207	4.13	4.012
1982	8.326	7.592	5.972	5.388	5.273	4.594
1983	5.103	4.992	4.87	4.579	4.526	4.368
1984	5.721	5.482	4.951	4.694	4.691	4.383
1985	5.206	5.011	4.707	4.52	4.455	4.251
1986	4.644	4.557	4.354	4.175	4.084	3.954
1987	4.399	4.282	4.115	4.018	4.004	3.802
1988	5.645	5.317	4.685	4.469	4.401	3.977
1989	5.204	5.058	4.476	4.145	4.053	3.753
1990	4.411	4.219	3.941	3.799	3.752	3.525

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	8.326	7.592	5.972	5.388	5.273	4.594
0.0645161290322581	7.984	7.282	5.775	5.063	4.865	4.383
0.0967741935483871	6.212	5.784	5.148	4.805	4.707	4.368
0.129032258064516	6.094	5.635	4.99	4.71	4.691	4.368
0.161290322580645	5.745	5.482	4.951	4.694	4.526	4.285
0.193548387096774	5.721	5.399	4.912	4.579	4.479	4.251
0.225806451612903	5.662	5.338	4.87	4.568	4.465	4.138
0.258064516129032	5.645	5.317	4.848	4.52	4.455	4.033
0.290322580645161	5.552	5.202	4.758	4.469	4.401	4.017
0.32258064516129	5.446	5.179	4.707	4.45	4.338	4.012
0.354838709677419	5.385	5.159	4.685	4.406	4.276	3.977
0.387096774193548	5.382	5.122	4.606	4.356	4.236	3.972
0.419354838709677	5.206	5.058	4.602	4.262	4.187	3.967
0.451612903225806	5.204	5.011	4.476	4.207	4.13	3.954
0.483870967741936	5.103	4.992	4.391	4.175	4.084	3.91
0.516129032258065	4.975	4.798	4.381	4.145	4.053	3.802
0.548387096774194	4.957	4.789	4.354	4.128	4.051	3.797
0.580645161290323	4.812	4.595	4.257	4.074	4.024	3.753
0.612903225806452	4.644	4.557	4.199	4.018	4.004	3.704
0.645161290322581	4.556	4.427	4.115	3.908	3.803	3.64
0.67741935483871	4.411	4.282	4.021	3.821	3.757	3.538
0.709677419354839	4.399	4.219	3.941	3.799	3.752	3.525
0.741935483870968	4.302	4.122	3.941	3.648	3.563	3.442
0.774193548387097	4.237	4.121	3.806	3.643	3.554	3.244
0.806451612903226	4.136	3.922	3.633	3.419	3.38	3.165
0.838709677419355	4.084	3.853	3.487	3.132	2.973	2.624
0.870967741935484	3.156	3.005	2.662	2.529	2.497	2.157
0.903225806451613	2.862	2.66	2.099	1.75	1.661	1.345
0.935483870967742	1.973	1.713	1.265	1.089	1.082	0.8493
0.967741935483871	0.8922	0.7945	0.6774	0.4429	0.4045	0.2994
0.1	6.2002	5.7691	5.1322	4.7955	4.7054	4.368

Average of yearly averages: 3.50379

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoFLtomatoPondAir
Metfile: w12844.dvf
PRZM scenario: FLtomatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife

Anaerobic Aquatic Metabolism		kbacs	1110	days	Halfife
Aerobic Soil Metabolism		asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life	
Method: CAM	2	integer	See PRZM manual		
Incorporation Depth:	DEPI	0	cm		
Application Rate:	TAPP	0.12	kg/ha		
Application Efficiency:		APPEFF	0.95	fraction	
Spray Drift	DRFT	0.05	fraction of application rate applied to pond		
Application Date	Date	05-03	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1 interval	7	days	Set to 0 or delete line for single app.		
Interval 2 interval	7	days	Set to 0 or delete line for single app.		
Interval 3 interval	7	days	Set to 0 or delete line for single app.		
Record 17: FILTRA					
IPSCND	1				
UPTKF					
Record 18: PLVKRT					
PLDKRT					
FEXTRC	0.5				
Flag for Index Res. Run		IR	Pond		
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)		

Ground Application to FL Tomato:

stored as difenoFLtomatoPondGr.out
Chemical: difenoconazole
PRZM environment: FLtomatoC.txt modified Satday, 12 October 2002 at 15:44:04
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w12844.dvf modified Wedday, 3 July 2002 at 09:04:30
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.5502	0.4702	0.3778	0.2897	0.2918	0.2002
1962	1.448	1.288	1.111	0.931	0.927	0.6814
1963	2.683	2.473	1.929	1.566	1.476	1.125
1964	2.943	2.786	2.464	2.324	2.29	1.914
1965	3.959	3.664	3.284	2.918	2.754	2.357
1966	4.595	4.369	3.69	3.384	3.3	2.884
1967	3.802	3.634	3.336	3.119	3.082	2.936
1968	5.501	5.077	4.634	4.158	3.983	3.39
1969	5.174	4.875	4.298	3.952	3.864	3.643
1970	4.966	4.796	4.232	3.985	3.948	3.68
1971	4.642	4.45	3.916	3.773	3.671	3.442
1972	5.918	5.475	4.818	4.471	4.376	3.797
1973	4.13	4.011	3.786	3.728	3.697	3.559
1974	3.877	3.741	3.503	3.391	3.35	3.276
1975	3.988	3.801	3.475	3.268	3.181	3.065
1976	5.237	4.873	4.032	3.531	3.433	3.158
1977	5.781	5.305	4.637	4.355	4.106	3.604
1978	5.06	4.79	4.256	3.996	3.877	3.663
1979	7.73	7.002	5.441	4.71	4.512	4.01
1980	5.046	4.831	4.488	4.206	4.119	3.922
1981	4.64	4.474	4.043	3.869	3.795	3.637
1982	7.816	7.104	5.522	4.994	4.896	4.246
1983	4.761	4.647	4.52	4.225	4.163	4.012
1984	5.399	5.152	4.602	4.342	4.275	4.026
1985	4.717	4.597	4.308	4.097	4.032	3.887
1986	4.074	3.984	3.829	3.748	3.678	3.578
1987	4.014	3.893	3.669	3.56	3.545	3.423
1988	5.327	4.986	4.328	4.111	4.048	3.607
1989	4.809	4.665	4.08	3.681	3.609	3.376
1990	4.045	3.845	3.576	3.421	3.379	3.143

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	7.816	7.104	5.522	4.994	4.896	4.246
0.0645161290322581	7.73	7.002	5.441	4.71	4.512	4.026
0.0967741935483871	5.918	5.475	4.818	4.471	4.376	4.012
0.129032258064516	5.781	5.305	4.637	4.355	4.275	4.01
0.161290322580645	5.501	5.152	4.634	4.342	4.163	3.922
0.193548387096774	5.399	5.077	4.602	4.225	4.119	3.887
0.225806451612903	5.327	4.986	4.52	4.206	4.106	3.797
0.258064516129032	5.237	4.875	4.488	4.158	4.048	3.68
0.290322580645161	5.174	4.873	4.328	4.111	4.032	3.663
0.32258064516129	5.06	4.831	4.308	4.097	3.983	3.643
0.354838709677419	5.046	4.796	4.298	3.996	3.948	3.637
0.387096774193548	4.966	4.79	4.256	3.985	3.877	3.607
0.419354838709677	4.809	4.665	4.232	3.952	3.864	3.604
0.451612903225806	4.761	4.647	4.08	3.869	3.795	3.578
0.483870967741936	4.717	4.597	4.043	3.773	3.697	3.559
0.516129032258065	4.642	4.474	4.032	3.748	3.678	3.442
0.548387096774194	4.64	4.45	3.916	3.728	3.671	3.423
0.580645161290323	4.595	4.369	3.829	3.681	3.609	3.39
0.612903225806452	4.13	4.011	3.786	3.56	3.545	3.376
0.645161290322581	4.074	3.984	3.69	3.531	3.433	3.276
0.67741935483871	4.045	3.893	3.669	3.421	3.379	3.158
0.709677419354839	4.014	3.845	3.576	3.391	3.35	3.143
0.741935483870968	3.988	3.801	3.503	3.384	3.3	3.065
0.774193548387097	3.959	3.741	3.475	3.268	3.181	2.936
0.806451612903226	3.877	3.664	3.336	3.119	3.082	2.884
0.838709677419355	3.802	3.634	3.284	2.918	2.754	2.357
0.870967741935484	2.943	2.786	2.464	2.324	2.29	1.914
0.903225806451613	2.683	2.473	1.929	1.566	1.476	1.125
0.935483870967742	1.448	1.288	1.111	0.931	0.927	0.6814
0.967741935483871	0.5502	0.4702	0.3778	0.2897	0.2918	0.2002
0.1	5.9043	5.458	4.7999	4.4594	4.3659	4.0118
				Average of yearly averages:		3.17472

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoFLtomatoPondGr
Metfile: w12844.dvf
PRZM scenario: FLtomatoC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:	APPEFF	0.99	fraction	
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	05-03	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	

Record 17:FILTRA

IPSCND 1
UPTKF
Record 18: PLVKRT
PLDKRT
FEXTRC 0.5
Flag for Index Res. Run IR Pond
Flag for runoff calc. RUNOFF none none, monthly or total(average of entire run)

Aerial Application to FL Bell Peppers:

stored as difenoFLpepperPondAir.out
Chemical: difenoconazole
PRZM environment: FLpeppersC.txt modified Satday, 12 October 2002 at 15:41:28
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w12844.dvf modified Wedday, 3 July 2002 at 09:04:30
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.6275	0.5376	0.4308	0.2998	0.2071	0.05107
1962	1.037	0.9481	0.8379	0.7123	0.6383	0.4218
1963	1.976	1.474	1.328	1.198	1.163	0.8028
1964	3.579	3.275	2.598	2.208	2.032	1.588
1965	3.205	3.028	2.778	2.457	2.317	1.982
1966	3.711	3.46	2.944	2.722	2.668	2.555
1967	3.033	2.936	2.823	2.684	2.633	2.562
1968	3.881	3.649	3.405	3.139	3.034	2.768
1969	3.787	3.618	3.288	3.173	3.076	2.993
1970	4.123	4	3.741	3.488	3.404	3.194
1971	4.777	4.435	3.883	3.401	3.201	3.004
1972	4.957	4.629	4.107	3.623	3.513	3.282
1973	3.552	3.449	3.309	3.272	3.25	3.155
1974	4.681	4.472	3.884	3.455	3.381	3.151
1975	3.345	3.235	3.125	2.968	2.941	2.879
1976	3.975	3.783	3.332	3.074	2.985	2.912
1977	4.537	4.301	3.811	3.62	3.418	3.174
1978	4.733	4.516	4.169	3.761	3.539	3.346
1979	5.102	4.78	4.084	3.743	3.636	3.457
1980	4.245	4.088	3.74	3.669	3.596	3.437
1981	4.454	4.199	3.819	3.45	3.305	3.213
1982	5.604	5.215	4.595	4.114	3.971	3.696
1983	5.196	5.001	4.501	4.252	4.147	3.867
1984	8.426	7.804	5.986	4.779	4.361	3.919
1985	4.578	4.475	4.239	4.145	4.113	3.984
1986	5.679	5.33	4.594	4.241	4.111	3.914
1987	4.597	4.408	4.249	3.978	3.981	3.835
1988	4.432	4.274	3.974	3.848	3.798	3.669
1989	4.12	4.039	3.703	3.468	3.438	3.286
1990	3.657	3.519	3.313	3.213	3.175	3.067

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	8.426	7.804	5.986	4.779	4.361	3.984
0.0645161290322581	5.679	5.33	4.595	4.252	4.147	3.919
0.0967741935483871	5.604	5.215	4.594	4.241	4.113	3.914
0.129032258064516	5.196	5.001	4.501	4.145	4.111	3.867
0.161290322580645	5.102	4.78	4.249	4.114	3.981	3.835
0.193548387096774	4.957	4.629	4.239	3.978	3.971	3.696
0.225806451612903	4.777	4.516	4.169	3.848	3.798	3.669
0.258064516129032	4.733	4.475	4.107	3.761	3.636	3.457
0.290322580645161	4.681	4.472	4.084	3.743	3.596	3.437
0.32258064516129	4.597	4.435	3.974	3.669	3.539	3.346
0.354838709677419	4.578	4.408	3.884	3.623	3.513	3.286
0.387096774193548	4.537	4.301	3.883	3.62	3.438	3.282

0.419354838709677	4.454	4.274	3.819	3.488	3.418	3.213
0.451612903225806	4.432	4.199	3.811	3.468	3.404	3.194
0.483870967741936	4.245	4.088	3.741	3.455	3.381	3.174
0.516129032258065	4.123	4.039	3.74	3.45	3.305	3.155
0.548387096774194	4.12	4	3.703	3.401	3.25	3.151
0.580645161290323	3.975	3.783	3.405	3.272	3.201	3.067
0.612903225806452	3.881	3.649	3.332	3.213	3.175	3.004
0.645161290322581	3.787	3.618	3.313	3.173	3.076	2.993
0.67741935483871	3.711	3.519	3.309	3.139	3.034	2.912
0.709677419354839	3.657	3.46	3.288	3.074	2.985	2.879
0.741935483870968	3.579	3.449	3.125	2.968	2.941	2.768
0.774193548387097	3.552	3.275	2.944	2.722	2.668	2.562
0.806451612903226	3.345	3.235	2.823	2.684	2.633	2.555
0.838709677419355	3.205	3.028	2.778	2.457	2.317	1.982
0.870967741935484	3.033	2.936	2.598	2.208	2.032	1.588
0.903225806451613	1.976	1.474	1.328	1.198	1.163	0.8028
0.935483870967742	1.037	0.9481	0.8379	0.7123	0.6383	0.4218
0.967741935483871	0.6275	0.5376	0.4308	0.2998	0.2071	0.05107
0.1	5.5632	5.1936	4.5847	4.2314	4.1128	3.9093
				Average of yearly averages:		2.905489

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoFLpepperPondAir
Metfile: w12844.dvf
PRZM scenario: FLpeppersC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	29-10	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to FL Bell Peppers:

stored as difenoFLpepperPondGr.out
Chemical: difenoconazole
PRZM environment: FLpeppersC.txt modified Satday, 12 October 2002 at 15:41:28

EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w12844.dvf modified Wedday, 3 July 2002 at 09:04:30
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.1454	0.1249	0.1087	0.08066	0.05572	0.01374
1962	0.6894	0.6059	0.5112	0.4299	0.42	0.2906
1963	1.759	1.351	1.057	0.9079	0.8746	0.6007
1964	3.091	2.828	2.24	1.835	1.718	1.351
1965	2.845	2.695	2.314	2.075	1.968	1.709
1966	3.475	3.214	2.677	2.477	2.425	2.263
1967	2.711	2.615	2.444	2.314	2.29	2.235
1968	3.609	3.368	3.114	2.842	2.738	2.419
1969	3.491	3.316	2.975	2.766	2.721	2.629
1970	3.793	3.665	3.393	3.135	3.053	2.821
1971	4.163	3.868	3.288	2.889	2.744	2.612
1972	4.416	4.123	3.516	3.233	3.172	2.9
1973	3.063	2.993	2.904	2.876	2.857	2.767
1974	4.337	4.119	3.509	3.067	2.995	2.759
1975	2.876	2.779	2.606	2.564	2.529	2.472
1976	3.632	3.432	2.965	2.688	2.618	2.498
1977	3.903	3.705	3.318	3.094	2.946	2.763
1978	4.081	3.959	3.551	3.238	3.068	2.938
1979	4.777	4.442	3.721	3.372	3.267	3.052
1980	3.857	3.693	3.34	3.263	3.191	3.029
1981	3.795	3.591	3.175	2.908	2.843	2.794
1982	5.29	4.886	3.988	3.666	3.605	3.3
1983	4.849	4.646	4.127	3.873	3.768	3.48
1984	7.948	7.323	5.547	4.293	3.921	3.532
1985	4.217	4.11	3.867	3.776	3.736	3.599
1986	5.281	4.929	4.195	3.775	3.724	3.527
1987	4.037	3.939	3.717	3.601	3.59	3.448
1988	4.098	3.935	3.622	3.498	3.45	3.275
1989	3.757	3.673	3.326	3.082	3.041	2.881
1990	3.296	3.153	2.957	2.845	2.812	2.656

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	7.948	7.323	5.547	4.293	3.921	3.599
0.0645161290322581	5.29	4.929	4.195	3.873	3.768	3.532
0.0967741935483871	5.281	4.886	4.127	3.776	3.736	3.527
0.129032258064516	4.849	4.646	3.988	3.775	3.724	3.48
0.161290322580645	4.777	4.442	3.867	3.666	3.605	3.448
0.193548387096774	4.416	4.123	3.721	3.601	3.59	3.3
0.225806451612903	4.337	4.119	3.717	3.498	3.45	3.275
0.258064516129032	4.217	4.11	3.622	3.372	3.267	3.052
0.290322580645161	4.163	3.959	3.551	3.263	3.191	3.029
0.32258064516129	4.098	3.939	3.516	3.238	3.172	2.938
0.354838709677419	4.081	3.935	3.509	3.233	3.068	2.9
0.387096774193548	4.037	3.868	3.393	3.135	3.053	2.881
0.419354838709677	3.903	3.705	3.34	3.094	3.041	2.821
0.451612903225806	3.857	3.693	3.326	3.082	2.995	2.794
0.483870967741936	3.795	3.673	3.318	3.067	2.946	2.767
0.516129032258065	3.793	3.665	3.288	2.908	2.857	2.763
0.548387096774194	3.757	3.591	3.175	2.889	2.843	2.759
0.580645161290323	3.632	3.432	3.114	2.876	2.812	2.656
0.612903225806452	3.609	3.368	2.975	2.845	2.744	2.629
0.645161290322581	3.491	3.316	2.965	2.842	2.738	2.612
0.67741935483871	3.475	3.214	2.957	2.766	2.721	2.498
0.709677419354839	3.296	3.153	2.904	2.688	2.618	2.472
0.741935483870968	3.091	2.993	2.677	2.564	2.529	2.419
0.774193548387097	3.063	2.828	2.606	2.477	2.425	2.263
0.806451612903226	2.876	2.779	2.444	2.314	2.29	2.235
0.838709677419355	2.845	2.695	2.314	2.075	1.968	1.709
0.870967741935484	2.711	2.615	2.24	1.835	1.718	1.351

0.903225806451613	1.759	1.351	1.057	0.9079	0.8746	0.6007
0.935483870967742	0.6894	0.6059	0.5112	0.4299	0.42	0.2906
0.967741935483871	0.1454	0.1249	0.1087	0.08066	0.05572	0.01374
0.1	5.2378	4.862	4.1131	3.7759	3.7348	3.5223

Average of yearly averages: 2.55380133333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenoFLpepperPondGr
Metfile: w12844.dvf
PRZM scenario: FLpeppersC.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.12	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	29-10	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to OR Ornamentals:

stored as difenORornamPdAir.out
Chemical: difenoconazole
PRZM environment: ORnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:27:14
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w24229.dvf modified Wedday, 3 July 2002 at 09:06:10
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.758	0.6484	0.5068	0.3479	0.3087	0.1016
1962	0.9914	0.8815	0.7408	0.602	0.6086	0.3649
1963	1.293	1.183	1.043	0.8861	0.8565	0.6565
1964	1.764	1.671	1.274	1.102	1.058	0.9021
1965	1.795	1.685	1.546	1.382	1.347	1.187
1966	1.984	1.873	1.735	1.573	1.551	1.392
1967	2.124	2.013	1.876	1.727	1.686	1.526
1968	2.294	2.179	2.036	1.888	1.86	1.686
1969	2.716	2.562	2.324	2.115	2.085	1.885
1970	2.673	2.562	2.424	2.26	2.213	2.096

1971	2.764	2.651	2.523	2.355	2.295	2.169
1972	2.826	2.75	2.59	2.419	2.36	2.252
1973	3.035	2.913	2.662	2.53	2.506	2.332
1974	3.047	2.935	2.8	2.632	2.626	2.499
1975	3.14	3.028	2.892	2.724	2.67	2.571
1976	3.145	3.034	2.898	2.727	2.665	2.556
1977	3.09	2.991	2.851	2.681	2.637	2.521
1978	3.17	3.058	2.923	2.75	2.695	2.587
1979	3.13	3.017	2.887	2.739	2.689	2.565
1980	3.358	3.251	2.999	2.88	2.805	2.687
1981	3.342	3.23	3.096	2.967	2.923	2.808
1982	3.8	3.623	3.287	3.099	3.05	2.89
1983	3.512	3.399	3.266	3.095	3.092	2.964
1984	3.498	3.386	3.251	3.093	3.097	2.963
1985	3.539	3.422	3.29	3.104	3.051	2.938
1986	3.581	3.451	3.286	3.099	3.033	2.893
1987	3.505	3.424	3.268	3.042	3.003	2.931
1988	3.586	3.462	3.284	3.107	3.062	2.952
1989	3.467	3.355	3.221	3.054	3.002	2.902
1990	3.421	3.309	3.174	3.015	2.968	2.872

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	3.8	3.623	3.29	3.107	3.097	2.964
0.0645161290322581	3.586	3.462	3.287	3.104	3.092	2.963
0.0967741935483871	3.581	3.451	3.286	3.099	3.062	2.952
0.129032258064516	3.539	3.424	3.284	3.099	3.051	2.938
0.161290322580645	3.512	3.422	3.268	3.095	3.05	2.931
0.193548387096774	3.505	3.399	3.266	3.093	3.033	2.902
0.225806451612903	3.498	3.386	3.251	3.054	3.003	2.893
0.258064516129032	3.467	3.355	3.221	3.042	3.002	2.89
0.290322580645161	3.421	3.309	3.174	3.015	2.968	2.872
0.32258064516129	3.358	3.251	3.096	2.967	2.923	2.808
0.354838709677419	3.342	3.23	2.999	2.88	2.805	2.687
0.387096774193548	3.17	3.058	2.923	2.75	2.695	2.587
0.419354838709677	3.145	3.034	2.898	2.739	2.689	2.571
0.451612903225806	3.14	3.028	2.892	2.727	2.67	2.565
0.483870967741936	3.13	3.017	2.887	2.724	2.665	2.556
0.516129032258065	3.09	2.991	2.851	2.681	2.637	2.521
0.548387096774194	3.047	2.935	2.8	2.632	2.626	2.499
0.580645161290323	3.035	2.913	2.662	2.53	2.506	2.332
0.612903225806452	2.826	2.75	2.59	2.419	2.36	2.252
0.645161290322581	2.764	2.651	2.523	2.355	2.295	2.169
0.67741935483871	2.716	2.562	2.424	2.26	2.213	2.096
0.709677419354839	2.673	2.562	2.324	2.115	2.085	1.885
0.741935483870968	2.294	2.179	2.036	1.888	1.86	1.686
0.774193548387097	2.124	2.013	1.876	1.727	1.686	1.526
0.806451612903226	1.984	1.873	1.735	1.573	1.551	1.392
0.838709677419355	1.795	1.685	1.546	1.382	1.347	1.187
0.870967741935484	1.764	1.671	1.274	1.102	1.058	0.9021
0.903225806451613	1.293	1.183	1.043	0.8861	0.8565	0.6565
0.935483870967742	0.9914	0.8815	0.7408	0.602	0.6086	0.3649
0.967741935483871	0.758	0.6484	0.5068	0.3479	0.3087	0.1016
0.1	3.5768	3.4483	3.2858	3.099	3.0609	2.9506

Average of yearly averages: 2.18830333333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenORornamPdAir
Metfile: w24229.dvf
PRZM scenario: ORnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name		Value	Units	Comments
Molecular weight	mwt	406	g/mol		
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol		
Vapor Pressure	vapr	2.5e-10	torr		
Solubility sol	150	mg/L			
Kd Kd		mg/L			
Koc Koc	5381	mg/L			
Photolysis half-life	kdp	228	days	Half-life	
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife	
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife	
Aerobic Soil Metabolism	asm	313	days	Halfife	
Hydrolysis:	pH 7	0	days	Half-life	
Method: CAM	2	integer	See PRZM manual		
Incorporation Depth:	DEPI	0	cm		
Application Rate:	TAPP	0.15	kg/ha		
Application Efficiency:		APPEFF	0.95	fraction	
Spray Drift	DRFT	0.05	fraction of application rate applied to pond		
Application Date	Date	30-08	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1 interval	7	days	Set to 0 or delete line for single app.		
Interval 2 interval	7	days	Set to 0 or delete line for single app.		
Interval 3 interval	7	days	Set to 0 or delete line for single app.		
Record 17: FILTRA					
IPSCND	1				
UPTKF					
Record 18: PLVKRT					
PLDKRT					
FEXTRC	0.5				
Flag for Index Res. Run		IR	Pond		
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)		

Ground Application to OR Ornamentals:

stored as difenORornamPdGr.out
Chemical: difenoconazole
PRZM environment: ORnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:27:14
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w24229.dvf modified Wedday, 3 July 2002 at 09:06:10
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.2474	0.2189	0.1459	0.1107	0.09176	0.03072
1962	0.6454	0.5703	0.453	0.3338	0.2869	0.1592
1963	0.555	0.5185	0.438	0.4036	0.3861	0.3322
1964	1.307	1.21	0.7958	0.6027	0.5506	0.4688
1965	1.103	1.051	0.7589	0.7149	0.6885	0.6589
1966	1.106	1.067	0.9283	0.8781	0.8359	0.7804
1967	1.034	0.9962	0.9124	0.8766	0.8653	0.8382
1968	1.212	1.172	1.127	1.059	1.021	0.933
1969	1.437	1.38	1.248	1.199	1.163	1.071
1970	1.586	1.517	1.387	1.327	1.298	1.233
1971	1.472	1.432	1.343	1.292	1.28	1.253
1972	1.59	1.564	1.438	1.344	1.333	1.292
1973	2.036	1.91	1.649	1.515	1.436	1.335
1974	1.859	1.82	1.666	1.554	1.527	1.472
1975	1.758	1.714	1.641	1.595	1.575	1.513
1976	1.603	1.583	1.536	1.515	1.513	1.462
1977	1.933	1.867	1.711	1.527	1.467	1.396
1978	1.565	1.547	1.512	1.492	1.481	1.439
1979	1.573	1.516	1.46	1.435	1.424	1.396
1980	2.195	2.086	1.821	1.691	1.598	1.507
1981	1.95	1.903	1.792	1.686	1.669	1.619
1982	2.119	2.028	1.887	1.806	1.774	1.691
1983	2.126	2.051	1.913	1.831	1.795	1.759
1984	2.171	2.093	1.922	1.858	1.8	1.746
1985	1.837	1.809	1.77	1.753	1.748	1.71

1986	2.06	1.978	1.803	1.703	1.696	1.655
1987	2.281	2.198	2.036	1.777	1.742	1.69
1988	1.899	1.867	1.796	1.755	1.744	1.708
1989	1.766	1.738	1.714	1.696	1.689	1.648
1990	1.82	1.79	1.723	1.698	1.678	1.612

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	2.281	2.198	2.036	1.858	1.8	1.759
0.0645161290322581	2.195	2.093	1.922	1.831	1.795	1.746
0.0967741935483871	2.171	2.086	1.913	1.806	1.774	1.71
0.129032258064516	2.126	2.051	1.887	1.777	1.748	1.708
0.161290322580645	2.119	2.028	1.821	1.755	1.744	1.691
0.193548387096774	2.06	1.978	1.803	1.753	1.742	1.69
0.225806451612903	2.036	1.91	1.796	1.703	1.696	1.655
0.258064516129032	1.95	1.903	1.792	1.698	1.689	1.648
0.290322580645161	1.933	1.867	1.77	1.696	1.678	1.619
0.32258064516129	1.899	1.867	1.723	1.691	1.669	1.612
0.354838709677419	1.859	1.82	1.714	1.686	1.598	1.513
0.387096774193548	1.837	1.809	1.711	1.595	1.575	1.507
0.419354838709677	1.82	1.79	1.666	1.554	1.527	1.472
0.451612903225806	1.766	1.738	1.649	1.527	1.513	1.462
0.483870967741936	1.758	1.714	1.641	1.515	1.481	1.439
0.516129032258065	1.603	1.583	1.536	1.515	1.467	1.396
0.548387096774194	1.59	1.564	1.512	1.492	1.436	1.396
0.580645161290323	1.586	1.547	1.46	1.435	1.424	1.335
0.612903225806452	1.573	1.517	1.438	1.344	1.333	1.292
0.645161290322581	1.565	1.516	1.387	1.327	1.298	1.253
0.67741935483871	1.472	1.432	1.343	1.292	1.28	1.233
0.709677419354839	1.437	1.38	1.248	1.199	1.163	1.071
0.741935483870968	1.307	1.21	1.127	1.059	1.021	0.933
0.774193548387097	1.212	1.172	0.9283	0.8781	0.8653	0.8382
0.806451612903226	1.106	1.067	0.9124	0.8766	0.8359	0.7804
0.838709677419355	1.103	1.051	0.7958	0.7149	0.6885	0.6589
0.870967741935484	1.034	0.9962	0.7589	0.6027	0.5506	0.4688
0.903225806451613	0.6454	0.5703	0.453	0.4036	0.3861	0.3322
0.935483870967742	0.555	0.5185	0.438	0.3338	0.2869	0.1592
0.967741935483871	0.2474	0.2189	0.1459	0.1107	0.09176	0.03072
0.1	2.1665	2.0825	1.9104	1.8031	1.7714	1.7098

Average of yearly averages: 1.24694733333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenORornamPdGr
Metfile: w24229.dvf
PRZM scenario: ORnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	

Application Efficiency:	APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond
Application Date	Date	30-08	dd/mm or dd/mmm or dd-mm or dd-mmm
Interval 1 interval	7	days	Set to 0 or delete line for single app.
Interval 2 interval	7	days	Set to 0 or delete line for single app.
Interval 3 interval	7	days	Set to 0 or delete line for single app.
Record 17: FILTRA			
IPSCND	1		
UPTKF			
Record 18: PLVKRT			
PLDKRT			
FEXTRC	0.5		
Flag for Index Res. Run	IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)

Aerial Application to CA Ornamentals:

stored as difenCAornamPdAir.out
Chemical: difenoconazole
PRZM environment: CAnursery no_irrig.txt modified Monday, 16 April 2007 at 14:26:46
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w23188.dvf modified Wedday, 3 July 2002 at 09:04:22
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.7579	0.6482	0.5067	0.3458	0.2921	0.1691
1962	1.217	1.13	0.9666	0.8033	0.7467	0.6137
1963	1.994	1.814	1.417	1.139	1.058	0.8533
1964	1.785	1.674	1.535	1.369	1.309	1.158
1965	4.116	3.744	3.054	2.579	2.139	1.512
1966	3.314	3.184	2.774	2.457	2.389	2.287
1967	3.599	3.464	3.024	2.738	2.659	2.551
1968	3.32	3.208	3.073	2.898	2.827	2.642
1969	5.425	4.958	3.992	3.497	3.346	3.108
1970	4.036	3.851	3.476	3.3	3.289	3.065
1971	3.723	3.61	3.481	3.306	3.231	3.061
1972	3.583	3.471	3.336	3.16	3.086	2.946
1973	3.542	3.43	3.295	3.119	3.046	2.869
1974	4.61	4.312	3.655	3.109	3.031	2.933
1975	3.813	3.699	3.571	3.393	3.345	3.113
1976	4.494	4.294	3.759	3.437	3.411	3.214
1977	7.462	6.797	5.331	4.478	4.276	3.826
1978	4.824	4.726	4.374	4.187	4.108	3.932
1979	4.888	4.699	4.301	4.118	4.035	3.851
1980	4.88	4.678	4.325	4.134	4.066	3.86
1981	5.516	5.184	4.452	3.912	3.91	3.692
1982	4.899	4.7	4.322	4.22	4.15	3.863
1983	4.428	4.312	4.18	3.993	3.947	3.699
1984	3.995	3.881	3.749	3.567	3.488	3.301
1985	6.358	5.889	5.095	4.354	3.891	3.357
1986	4.604	4.489	4.363	4.181	4.112	3.997
1987	4.587	4.473	4.342	4.16	4.081	3.946
1988	5.59	5.348	4.945	4.488	4.354	4.024
1989	4.492	4.38	4.247	4.067	3.989	3.794
1990	4.354	4.241	4.108	3.941	3.868	3.671

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	7.462	6.797	5.331	4.488	4.354	4.024
0.0645161290322581	6.358	5.889	5.095	4.478	4.276	3.997
0.0967741935483871	5.59	5.348	4.945	4.354	4.15	3.946
0.129032258064516	5.516	5.184	4.452	4.22	4.112	3.932
0.161290322580645	5.425	4.958	4.374	4.187	4.108	3.863

0.193548387096774	4.899	4.726	4.363	4.181	4.081	3.86
0.225806451612903	4.888	4.7	4.342	4.16	4.066	3.851
0.258064516129032	4.88	4.699	4.325	4.134	4.035	3.826
0.290322580645161	4.824	4.678	4.322	4.118	3.989	3.794
0.32258064516129	4.61	4.489	4.301	4.067	3.947	3.699
0.354838709677419	4.604	4.473	4.247	3.993	3.91	3.692
0.387096774193548	4.587	4.38	4.18	3.941	3.891	3.671
0.419354838709677	4.494	4.312	4.108	3.912	3.868	3.357
0.451612903225806	4.492	4.312	3.992	3.567	3.488	3.301
0.483870967741936	4.428	4.294	3.759	3.497	3.411	3.214
0.516129032258065	4.354	4.241	3.749	3.437	3.346	3.113
0.548387096774194	4.116	3.881	3.655	3.393	3.345	3.108
0.580645161290323	4.036	3.851	3.571	3.306	3.289	3.065
0.612903225806452	3.995	3.744	3.481	3.3	3.231	3.061
0.645161290322581	3.813	3.699	3.476	3.16	3.086	2.946
0.67741935483871	3.723	3.61	3.336	3.119	3.046	2.933
0.709677419354839	3.599	3.471	3.295	3.109	3.031	2.869
0.741935483870968	3.583	3.464	3.073	2.898	2.827	2.642
0.774193548387097	3.542	3.43	3.054	2.738	2.659	2.551
0.806451612903226	3.32	3.208	3.024	2.579	2.389	2.287
0.838709677419355	3.314	3.184	2.774	2.457	2.139	1.512
0.870967741935484	1.994	1.814	1.535	1.369	1.309	1.158
0.903225806451613	1.785	1.674	1.417	1.139	1.058	0.8533
0.935483870967742	1.217	1.13	0.9666	0.8033	0.7467	0.6137
0.967741935483871	0.7579	0.6482	0.5067	0.3458	0.2921	0.1691
0.1	5.5826	5.3316	4.8957	4.3406	4.1462	3.9446
				Average of yearly averages:		2.96360333333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenCAornamPdAir
Metfile: w23188.dvf
PRZM scenario: CAnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	15-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	

Flag for runoff calc. RUNOFF none none, monthly or total(average of entire run)

Ground Application to CA Ornamentals:

stored as difenCAornamPdGr.out
Chemical: difenoconazole
PRZM environment: CAnursery no_irrig.txt modified Monday, 16 April 2007 at 14:26:46
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w23188.dvf modified Wedday, 3 July 2002 at 09:04:22
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.4982	0.4266	0.2693	0.1334	0.1004	0.04705
1962	1.127	1.038	0.6903	0.5057	0.4566	0.3779
1963	1.704	1.517	1.105	0.8148	0.7284	0.5137
1964	0.9398	0.8988	0.8188	0.7833	0.7683	0.7339
1965	3.746	3.359	2.641	2.143	1.681	1.017
1966	2.844	2.708	2.283	1.929	1.866	1.751
1967	3.084	2.943	2.487	2.188	2.056	1.967
1968	2.464	2.391	2.227	2.152	2.133	2.014
1969	4.953	4.467	3.462	2.951	2.798	2.456
1970	3.477	3.284	2.857	2.593	2.547	2.374
1971	2.661	2.607	2.486	2.414	2.423	2.335
1972	2.79	2.703	2.463	2.297	2.246	2.188
1973	2.253	2.229	2.206	2.173	2.166	2.084
1974	3.919	3.609	2.926	2.353	2.221	2.129
1975	2.942	2.829	2.617	2.497	2.463	2.296
1976	3.797	3.588	3.033	2.649	2.59	2.389
1977	6.377	5.758	4.396	3.606	3.435	3.024
1978	4.127	4.026	3.649	3.411	3.357	3.137
1979	4.201	4.004	3.569	3.346	3.285	3.051
1980	4.193	3.984	3.535	3.395	3.329	3.062
1981	4.841	4.496	3.736	3.115	3.045	2.889
1982	4.233	4.026	3.581	3.35	3.276	3.067
1983	3.544	3.448	3.222	3.136	3.104	2.898
1984	3.184	3.042	2.649	2.63	2.614	2.495
1985	5.724	5.235	4.406	3.638	3.15	2.553
1986	3.79	3.685	3.455	3.358	3.345	3.21
1987	3.74	3.62	3.331	3.257	3.234	3.142
1988	4.521	4.336	3.869	3.522	3.428	3.212
1989	3.634	3.492	3.142	3.112	3.098	2.961
1990	3.369	3.286	3.171	3.048	3.003	2.827

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	6.377	5.758	4.406	3.638	3.435	3.212
0.0645161290322581	5.724	5.235	4.396	3.606	3.428	3.21
0.0967741935483871	4.953	4.496	3.869	3.522	3.357	3.142
0.129032258064516	4.841	4.467	3.736	3.411	3.345	3.137
0.161290322580645	4.521	4.336	3.649	3.395	3.329	3.067
0.193548387096774	4.233	4.026	3.581	3.358	3.285	3.062
0.225806451612903	4.201	4.026	3.569	3.35	3.276	3.051
0.258064516129032	4.193	4.004	3.535	3.346	3.234	3.024
0.290322580645161	4.127	3.984	3.462	3.257	3.15	2.961
0.32258064516129	3.919	3.685	3.455	3.136	3.104	2.898
0.354838709677419	3.797	3.62	3.331	3.115	3.098	2.889
0.387096774193548	3.79	3.609	3.222	3.112	3.045	2.827
0.419354838709677	3.746	3.588	3.171	3.048	3.003	2.553
0.451612903225806	3.74	3.492	3.142	2.951	2.798	2.495
0.483870967741936	3.634	3.448	3.033	2.649	2.614	2.456
0.516129032258065	3.544	3.359	2.926	2.63	2.59	2.389
0.548387096774194	3.477	3.286	2.857	2.593	2.547	2.374
0.580645161290323	3.369	3.284	2.649	2.497	2.463	2.335

0.612903225806452	3.184	3.042	2.641	2.414	2.423	2.296
0.645161290322581	3.084	2.943	2.617	2.353	2.246	2.188
0.67741935483871	2.942	2.829	2.487	2.297	2.221	2.129
0.709677419354839	2.844	2.708	2.486	2.188	2.166	2.084
0.741935483870968	2.79	2.703	2.463	2.173	2.133	2.014
0.774193548387097	2.661	2.607	2.283	2.152	2.056	1.967
0.806451612903226	2.464	2.391	2.227	2.143	1.866	1.751
0.838709677419355	2.253	2.229	2.206	1.929	1.681	1.017
0.870967741935484	1.704	1.517	1.105	0.8148	0.7683	0.7339
0.903225806451613	1.127	1.038	0.8188	0.7833	0.7284	0.5137
0.935483870967742	0.9398	0.8988	0.6903	0.5057	0.4566	0.3779
0.967741935483871	0.4982	0.4266	0.2693	0.1334	0.1004	0.04705
0.1	4.9418	4.4931	3.8557	3.5109	3.3558	3.1415
				Average of yearly averages:		2.27335166666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenCAornamPdGr
Metfile: w23188.dvf
PRZM scenario: CAnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis: pH 7	0	days	Half-life	
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	
Application Efficiency:	APPEFF	0.99	fraction	
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	15-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run	IR	Pond		
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to NJ Ornamentals:

stored as difenNJornamPdAir.out
Chemical: difenoconazole
PRZM environment: NJnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:27:36
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w93730.dvf modified Wedday, 3 July 2002 at 09:05:58
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.7743	0.6627	0.5289	0.4333	0.4166	0.2381
1962	1.621	1.468	1.132	1.024	1.007	0.7548
1963	2.158	1.981	1.793	1.557	1.49	1.279
1964	2.504	2.387	2.096	1.905	1.869	1.694
1965	2.514	2.402	2.281	2.127	2.112	1.926
1966	5.274	4.747	3.589	3.13	3	2.413
1967	5.652	5.304	4.277	3.695	3.558	3.102
1968	5.637	5.268	4.5	4.032	3.926	3.575
1969	7.562	6.915	5.781	4.824	4.605	3.985
1970	4.988	4.857	4.65	4.553	4.492	4.263
1971	5.918	5.634	5.202	5.036	4.921	4.481
1972	5.477	5.332	5.11	4.941	4.908	4.739
1973	5.498	5.337	5.147	4.981	4.921	4.763
1974	5.464	5.31	5.032	4.927	4.839	4.697
1975	5.964	5.75	5.462	5.223	5.162	4.852
1976	5.796	5.614	5.369	5.041	5.037	4.879
1977	5.493	5.38	5.25	5.088	5.001	4.93
1978	7.433	7.019	6.123	5.85	5.733	5.244
1979	7.503	7.112	6.271	5.767	5.649	5.408
1980	5.939	5.822	5.697	5.539	5.471	5.273
1981	6.14	5.97	5.675	5.545	5.462	5.157
1982	5.616	5.501	5.381	5.272	5.206	4.984
1983	5.921	5.76	5.431	5.182	5.077	4.841
1984	7.583	7.13	6.085	5.516	5.385	4.949
1985	5.601	5.465	5.326	5.115	5.022	4.807
1986	5.3	5.185	5.06	4.886	4.848	4.7
1987	6.65	6.308	5.61	5.199	5.073	4.799
1988	5.41	5.287	5.143	4.942	4.898	4.74
1989	5.896	5.694	5.333	5.146	5.14	4.884
1990	6.708	6.408	5.732	5.409	5.296	4.999

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	7.583	7.13	6.271	5.85	5.733	5.408
0.0645161290322581	7.562	7.112	6.123	5.767	5.649	5.273
0.0967741935483871	7.503	7.019	6.085	5.545	5.471	5.244
0.129032258064516	7.433	6.915	5.781	5.539	5.462	5.157
0.161290322580645	6.708	6.408	5.732	5.516	5.385	4.999
0.193548387096774	6.65	6.308	5.697	5.409	5.296	4.984
0.225806451612903	6.14	5.97	5.675	5.272	5.206	4.949
0.258064516129032	5.964	5.822	5.61	5.223	5.162	4.93
0.290322580645161	5.939	5.76	5.462	5.199	5.14	4.884
0.32258064516129	5.921	5.75	5.431	5.182	5.077	4.879
0.354838709677419	5.918	5.694	5.381	5.146	5.073	4.852
0.387096774193548	5.896	5.634	5.369	5.115	5.037	4.841
0.419354838709677	5.796	5.614	5.333	5.088	5.022	4.807
0.451612903225806	5.652	5.501	5.326	5.041	5.001	4.799
0.483870967741936	5.637	5.465	5.25	5.036	4.921	4.763
0.516129032258065	5.616	5.38	5.202	4.981	4.921	4.74
0.548387096774194	5.601	5.337	5.147	4.942	4.908	4.739
0.580645161290323	5.498	5.332	5.143	4.941	4.898	4.7
0.612903225806452	5.493	5.31	5.11	4.927	4.848	4.697
0.645161290322581	5.477	5.304	5.06	4.886	4.839	4.481
0.67741935483871	5.464	5.287	5.032	4.824	4.605	4.263
0.709677419354839	5.41	5.268	4.65	4.553	4.492	3.985
0.741935483870968	5.3	5.185	4.5	4.032	3.926	3.575
0.774193548387097	5.274	4.857	4.277	3.695	3.558	3.102
0.806451612903226	4.988	4.747	3.589	3.13	3	2.413
0.838709677419355	2.514	2.402	2.281	2.127	2.112	1.926
0.870967741935484	2.504	2.387	2.096	1.905	1.869	1.694
0.903225806451613	2.158	1.981	1.793	1.557	1.49	1.279
0.935483870967742	1.621	1.468	1.132	1.024	1.007	0.7548
0.967741935483871	0.7743	0.6627	0.5289	0.4333	0.4166	0.2381

0.1		7.496	7.0086	6.0546	5.5444	5.4701	5.2353
					Average of yearly averages:		4.04519666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenNJornamPdAir
Metfile: w93730.dvf
PRZM scenario: NJnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	
Application Efficiency:	APPEFF	0.95	fraction	
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	30-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to NJ Ornamentals:

stored as difenNJornamPdGr.out
Chemical: difenoconazole
PRZM environment: NJnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:27:36
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w93730.dvf modified Wedday, 3 July 2002 at 09:05:58
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.5662	0.4881	0.3898	0.3069	0.2901	0.1254
1962	1.411	1.251	0.902	0.792	0.7754	0.5291
1963	1.634	1.502	1.378	1.168	1.136	0.9561
1964	2.122	2.001	1.698	1.502	1.465	1.285
1965	1.952	1.858	1.65	1.522	1.505	1.432
1966	4.826	4.278	3.075	2.601	2.468	1.856
1967	5.137	4.774	3.707	3.108	2.968	2.497
1968	4.823	4.476	3.754	3.301	3.223	2.922
1969	6.999	6.326	5.148	4.16	3.939	3.294
1970	4.222	4.092	3.89	3.707	3.648	3.534
1971	5.204	4.909	4.459	4.295	4.182	3.717
1972	4.741	4.591	4.36	4.15	4.089	3.946

1973	4.718	4.551	4.178	3.999	3.98	3.939
1974	4.637	4.478	4.133	3.93	3.914	3.846
1975	4.69	4.554	4.302	4.202	4.196	3.98
1976	4.932	4.745	4.492	4.159	4.162	3.983
1977	4.566	4.444	4.245	4.107	4.082	4.013
1978	6.2	5.837	5.124	4.861	4.764	4.323
1979	6.64	6.234	5.363	4.851	4.735	4.475
1980	4.518	4.473	4.435	4.408	4.401	4.317
1981	5.142	4.97	4.675	4.419	4.365	4.181
1982	4.365	4.297	4.163	4.104	4.087	3.992
1983	4.469	4.361	4.144	4	3.97	3.841
1984	6.456	6.02	5.013	4.475	4.337	3.953
1985	4.352	4.255	4.077	3.935	3.91	3.807
1986	4.126	4.052	3.864	3.747	3.712	3.694
1987	5.68	5.327	4.609	4.198	4.076	3.791
1988	4.091	4.006	3.837	3.768	3.754	3.722
1989	4.896	4.688	4.253	4.138	4.141	3.865
1990	5.505	5.231	4.616	4.252	4.194	3.982

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	6.999	6.326	5.363	4.861	4.764	4.475
0.0645161290322581	6.64	6.234	5.148	4.851	4.735	4.323
0.0967741935483871	6.456	6.02	5.124	4.475	4.401	4.317
0.129032258064516	6.2	5.837	5.013	4.419	4.365	4.181
0.161290322580645	5.68	5.327	4.675	4.408	4.337	4.013
0.193548387096774	5.505	5.231	4.616	4.295	4.196	3.992
0.225806451612903	5.204	4.97	4.609	4.252	4.194	3.983
0.258064516129032	5.142	4.909	4.492	4.202	4.182	3.982
0.290322580645161	5.137	4.774	4.459	4.198	4.162	3.98
0.32258064516129	4.932	4.745	4.435	4.16	4.141	3.953
0.354838709677419	4.896	4.688	4.36	4.159	4.089	3.946
0.387096774193548	4.826	4.591	4.302	4.15	4.087	3.939
0.419354838709677	4.823	4.554	4.253	4.138	4.082	3.865
0.451612903225806	4.741	4.551	4.245	4.107	4.076	3.846
0.483870967741936	4.718	4.478	4.178	4.104	3.98	3.841
0.516129032258065	4.69	4.476	4.163	4	3.97	3.807
0.548387096774194	4.637	4.473	4.144	3.999	3.939	3.791
0.580645161290323	4.566	4.444	4.133	3.935	3.914	3.722
0.612903225806452	4.518	4.361	4.077	3.93	3.91	3.717
0.645161290322581	4.469	4.297	3.89	3.768	3.754	3.694
0.67741935483871	4.365	4.278	3.864	3.747	3.712	3.534
0.709677419354839	4.352	4.255	3.837	3.707	3.648	3.294
0.741935483870968	4.222	4.092	3.754	3.301	3.223	2.922
0.774193548387097	4.126	4.052	3.707	3.108	2.968	2.497
0.806451612903226	4.091	4.006	3.075	2.601	2.468	1.856
0.838709677419355	2.122	2.001	1.698	1.522	1.505	1.432
0.870967741935484	1.952	1.858	1.65	1.502	1.465	1.285
0.903225806451613	1.634	1.502	1.378	1.168	1.136	0.9561
0.935483870967742	1.411	1.251	0.902	0.792	0.7754	0.5291
0.967741935483871	0.5662	0.4881	0.3898	0.3069	0.2901	0.1254
0.1	6.4304	6.0017	5.1129	4.4694	4.3974	4.3034

Average of yearly averages: 3.25992

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenNJornamPdGr
Metfile: w93730.dvf
PRZM scenario: NJnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	

Henry's Law Const.		henry	8.9e-12	atm-m^3/mol		
Vapor Pressure		vapr	2.5e-10	torr		
Solubility	sol	150	mg/L			
Kd	Kd		mg/L			
Koc	Koc	5381	mg/L			
Photolysis half-life		kdp	228	days	Half-life	
Aerobic Aquatic Metabolism		kbacw	556	days	Halfife	
Anaerobic Aquatic Metabolism		kbacs	1110	days	Halfife	
Aerobic Soil Metabolism		asm	313	days	Halfife	
Hydrolysis:		pH 7	0	days	Half-life	
Method:	CAM	2	integer	See PRZM manual		
Incorporation Depth:		DEPI	0	cm		
Application Rate:		TAPP	0.15	kg/ha		
Application Efficiency:			APPEFF	0.99	fraction	
Spray Drift		DRFT	0.01	fraction of application rate applied to pond		
Application Date		Date	30-04	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1	interval	7	days	Set to 0 or delete line for single app.		
Interval 2	interval	7	days	Set to 0 or delete line for single app.		
Interval 3	interval	7	days	Set to 0 or delete line for single app.		
Record 17:	FILTRA					
	IPSCND	1				
	UPTKF					
Record 18:	PLVKRT					
	PLDKRT					
	FEXTRC	0.5				
Flag for Index Res. Run			IR	Pond		
Flag for runoff calc.		RUNOFF	none	none, monthly or total(average of entire run)		

Aerial Application to TN Ornamentals:

stored as difenTNornamPdAir.out
Chemical: difenoconazole
PRZM environment: TNnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:28:44
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w13882.dvf modified Wedday, 3 July 2002 at 09:06:20
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.401	1.252	0.9603	0.7002	0.6411	0.4049
1962	1.482	1.393	1.197	1.128	1.11	0.9684
1963	2.311	2.121	2	1.704	1.675	1.452
1964	3.328	3.136	2.715	2.375	2.281	1.983
1965	3.047	2.902	2.599	2.481	2.429	2.251
1966	3.063	2.933	2.825	2.609	2.542	2.411
1967	4.001	3.8	3.304	2.976	2.969	2.706
1968	3.762	3.645	3.352	3.139	3.048	2.818
1969	3.618	3.478	3.205	3.056	3.014	2.905
1970	3.712	3.593	3.496	3.363	3.288	3.086
1971	3.929	3.783	3.544	3.361	3.315	3.182
1972	5.566	5.183	4.355	3.985	3.95	3.601
1973	4.992	4.794	4.52	4.33	4.219	3.936
1974	4.703	4.578	4.399	4.272	4.189	4.023
1975	4.995	4.816	4.493	4.325	4.271	4.104
1976	5.492	5.262	4.792	4.607	4.566	4.276
1977	6.101	5.749	5.253	4.811	4.712	4.385
1978	5.308	5.155	4.963	4.722	4.617	4.357
1979	6.189	5.985	5.335	4.963	4.93	4.583
1980	5.449	5.312	5.117	4.942	4.851	4.572
1981	4.971	4.856	4.748	4.657	4.583	4.356
1982	4.923	4.802	4.675	4.469	4.377	4.251
1983	5.571	5.428	4.969	4.651	4.548	4.24
1984	5.51	5.345	5.074	4.676	4.602	4.292
1985	4.92	4.813	4.617	4.403	4.306	4.123

1986	4.705	4.544	4.312	4.188	4.111	3.988
1987	4.817	4.678	4.466	4.419	4.35	4.06
1988	4.568	4.454	4.325	4.175	4.087	4.003
1989	5.236	5.083	4.822	4.563	4.481	4.196
1990	5.212	5.038	4.777	4.588	4.518	4.256

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	6.189	5.985	5.335	4.963	4.93	4.583
0.0645161290322581	6.101	5.749	5.253	4.942	4.851	4.572
0.0967741935483871	5.571	5.428	5.117	4.811	4.712	4.385
0.129032258064516	5.566	5.345	5.074	4.722	4.617	4.357
0.161290322580645	5.51	5.312	4.969	4.676	4.602	4.356
0.193548387096774	5.492	5.262	4.963	4.657	4.583	4.292
0.225806451612903	5.449	5.183	4.822	4.651	4.566	4.276
0.258064516129032	5.308	5.155	4.792	4.607	4.548	4.256
0.290322580645161	5.236	5.083	4.777	4.588	4.518	4.251
0.32258064516129	5.212	5.038	4.748	4.563	4.481	4.24
0.354838709677419	4.995	4.856	4.675	4.469	4.377	4.196
0.387096774193548	4.992	4.816	4.617	4.419	4.35	4.123
0.419354838709677	4.971	4.813	4.52	4.403	4.306	4.104
0.451612903225806	4.923	4.802	4.493	4.33	4.271	4.06
0.483870967741936	4.92	4.794	4.466	4.325	4.219	4.023
0.516129032258065	4.817	4.678	4.399	4.272	4.189	4.003
0.548387096774194	4.705	4.578	4.355	4.188	4.111	3.988
0.580645161290323	4.703	4.544	4.325	4.175	4.087	3.936
0.612903225806452	4.568	4.454	4.312	3.985	3.95	3.601
0.645161290322581	4.001	3.8	3.544	3.363	3.315	3.182
0.67741935483871	3.929	3.783	3.496	3.361	3.288	3.086
0.709677419354839	3.762	3.645	3.352	3.139	3.048	2.905
0.741935483870968	3.712	3.593	3.304	3.056	3.014	2.818
0.774193548387097	3.618	3.478	3.205	2.976	2.969	2.706
0.806451612903226	3.328	3.136	2.825	2.609	2.542	2.411
0.838709677419355	3.063	2.933	2.715	2.481	2.429	2.251
0.870967741935484	3.047	2.902	2.599	2.375	2.281	1.983
0.903225806451613	2.311	2.121	2	1.704	1.675	1.452
0.935483870967742	1.482	1.393	1.197	1.128	1.11	0.9684
0.967741935483871	1.401	1.252	0.9603	0.7002	0.6411	0.4049
0.1	5.5705	5.4197	5.1127	4.8021	4.7025	4.3822

Average of yearly averages: 3.45897666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenTNornamPdAir
Metfile: w13882.dvf
PRZM scenario: TNnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	

Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	20-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1	interval	7	days	Set to 0 or delete line for single app.
Interval 2	interval	7	days	Set to 0 or delete line for single app.
Interval 3	interval	7	days	Set to 0 or delete line for single app.
Record 17:	FILTRA			
	IPSCND	1		
	UPTKF			
Record 18:	PLVKRT			
	PLDKRT			
	FEXTRC	0.5		
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to TN Ornamentals:

stored as difenTNornamPdGr.out
Chemical: difenoconazole
PRZM environment: TNnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:28:44
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w13882.dvf modified Wedday, 3 July 2002 at 09:06:20
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.32	1.164	0.8602	0.5414	0.4863	0.296
1962	1.221	1.135	0.9717	0.9017	0.8869	0.754
1963	1.76	1.624	1.443	1.315	1.274	1.146
1964	2.709	2.512	2.053	1.847	1.795	1.604
1965	2.567	2.421	2.118	1.923	1.881	1.797
1966	2.395	2.324	2.139	2.044	1.999	1.888
1967	3.453	3.243	2.731	2.397	2.315	2.128
1968	2.774	2.719	2.5	2.339	2.295	2.189
1969	2.969	2.824	2.544	2.385	2.337	2.234
1970	2.848	2.755	2.599	2.49	2.483	2.379
1971	3.133	3.036	2.795	2.601	2.566	2.45
1972	4.466	4.141	3.425	3.17	3.151	2.857
1973	4.142	3.952	3.707	3.425	3.387	3.177
1974	3.909	3.776	3.58	3.38	3.364	3.247
1975	4.256	4.07	3.737	3.566	3.51	3.305
1976	4.331	4.158	3.807	3.709	3.694	3.465
1977	5.382	5.015	4.503	4.051	3.952	3.568
1978	4.046	3.976	3.844	3.726	3.683	3.54
1979	5.426	5.215	4.544	4.127	4.093	3.768
1980	4.354	4.26	4.064	3.941	3.937	3.75
1981	3.951	3.871	3.724	3.647	3.622	3.523
1982	3.874	3.793	3.615	3.533	3.505	3.407
1983	4.575	4.407	4.016	3.677	3.576	3.388
1984	4.275	4.138	3.931	3.644	3.628	3.436
1985	3.593	3.535	3.45	3.357	3.331	3.255
1986	3.889	3.722	3.363	3.239	3.214	3.12
1987	3.896	3.776	3.578	3.455	3.375	3.201
1988	3.67	3.566	3.377	3.279	3.24	3.141
1989	4.393	4.236	3.958	3.701	3.592	3.339
1990	3.876	3.816	3.627	3.574	3.547	3.403

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	5.426	5.215	4.544	4.127	4.093	3.768
0.0645161290322581	5.382	5.015	4.503	4.051	3.952	3.75
0.0967741935483871	4.575	4.407	4.064	3.941	3.937	3.568
0.129032258064516	4.466	4.26	4.016	3.726	3.694	3.54
0.161290322580645	4.393	4.236	3.958	3.709	3.683	3.523

0.193548387096774	4.354	4.158	3.931	3.701	3.628	3.465
0.225806451612903	4.331	4.141	3.844	3.677	3.622	3.436
0.258064516129032	4.275	4.138	3.807	3.647	3.592	3.407
0.290322580645161	4.256	4.07	3.737	3.644	3.576	3.403
0.32258064516129	4.142	3.976	3.724	3.574	3.547	3.388
0.354838709677419	4.046	3.952	3.707	3.566	3.51	3.339
0.387096774193548	3.951	3.871	3.627	3.533	3.505	3.305
0.419354838709677	3.909	3.816	3.615	3.455	3.387	3.255
0.451612903225806	3.896	3.793	3.58	3.425	3.375	3.247
0.483870967741936	3.889	3.776	3.578	3.38	3.364	3.201
0.516129032258065	3.876	3.776	3.45	3.357	3.331	3.177
0.548387096774194	3.874	3.722	3.425	3.279	3.24	3.141
0.580645161290323	3.67	3.566	3.377	3.239	3.214	3.12
0.612903225806452	3.593	3.535	3.363	3.17	3.151	2.857
0.645161290322581	3.453	3.243	2.795	2.601	2.566	2.45
0.67741935483871	3.133	3.036	2.731	2.49	2.483	2.379
0.709677419354839	2.969	2.824	2.599	2.397	2.337	2.234
0.741935483870968	2.848	2.755	2.544	2.385	2.315	2.189
0.774193548387097	2.774	2.719	2.5	2.339	2.295	2.128
0.806451612903226	2.709	2.512	2.139	2.044	1.999	1.888
0.838709677419355	2.567	2.421	2.118	1.923	1.881	1.797
0.870967741935484	2.395	2.324	2.053	1.847	1.795	1.604
0.903225806451613	1.76	1.624	1.443	1.315	1.274	1.146
0.935483870967742	1.32	1.164	0.9717	0.9017	0.8869	0.754
0.967741935483871	1.221	1.135	0.8602	0.5414	0.4863	0.296
0.1	4.5641	4.3923	4.0592	3.9195	3.9127	3.5652
				Average of yearly averages:		2.7585

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenTNornamPdGr
Metfile: w13882.dvf
PRZM scenario: TNnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	20-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	

Flag for runoff calc. RUNOFF none none, monthly or total(average of entire run)

Aerial Application to MI Ornamentals:

stored as difenMIornamPdAir.out
Chemical: difenoconazole
PRZM environment: MInursery no_irrig.txt modified Tueday, 17 April 2007 at 08:27:58
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14840.dvf modified Wedday, 3 July 2002 at 09:05:38
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.7587	0.6492	0.5074	0.3906	0.3707	0.2076
1962	1.074	0.9642	0.8238	0.6624	0.6365	0.505
1963	1.421	1.305	1.185	1.044	0.9858	0.8072
1964	1.615	1.504	1.365	1.201	1.141	1.005
1965	2.361	2.185	1.831	1.61	1.561	1.297
1966	2.195	2.084	1.947	1.786	1.723	1.581
1967	2.924	2.758	2.365	2.157	2.09	1.849
1968	2.605	2.493	2.355	2.186	2.141	1.992
1969	2.689	2.577	2.441	2.284	2.243	2.09
1970	2.822	2.709	2.579	2.436	2.368	2.22
1971	2.93	2.832	2.691	2.521	2.463	2.3
1972	3.062	2.964	2.755	2.65	2.637	2.487
1973	3.281	3.169	3.064	2.91	2.881	2.724
1974	3.637	3.498	3.326	3.122	3.042	2.839
1975	3.944	3.788	3.454	3.255	3.2	3.008
1976	3.967	3.844	3.678	3.52	3.433	3.195
1977	3.787	3.675	3.541	3.383	3.32	3.156
1978	4.103	3.935	3.719	3.489	3.418	3.255
1979	3.974	3.862	3.73	3.551	3.491	3.317
1980	4.018	3.903	3.681	3.582	3.518	3.385
1981	4.092	3.975	3.847	3.681	3.618	3.474
1982	4.192	4.073	3.96	3.8	3.733	3.554
1983	4.189	4.077	3.939	3.764	3.69	3.569
1984	4.583	4.454	4.173	3.957	3.882	3.635
1985	4.232	4.12	3.988	3.85	3.818	3.701
1986	5.991	5.627	4.888	4.46	4.34	3.93
1987	5.381	5.16	4.683	4.433	4.36	4.185
1988	4.824	4.711	4.581	4.395	4.31	4.194
1989	5.255	5.079	4.736	4.529	4.463	4.26
1990	5.119	4.977	4.86	4.598	4.5	4.281

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	5.991	5.627	4.888	4.598	4.5	4.281
0.0645161290322581	5.381	5.16	4.86	4.529	4.463	4.26
0.0967741935483871	5.255	5.079	4.736	4.46	4.36	4.194
0.129032258064516	5.119	4.977	4.683	4.433	4.34	4.185
0.161290322580645	4.824	4.711	4.581	4.395	4.31	3.93
0.193548387096774	4.583	4.454	4.173	3.957	3.882	3.701
0.225806451612903	4.232	4.12	3.988	3.85	3.818	3.635
0.258064516129032	4.192	4.077	3.96	3.8	3.733	3.569
0.290322580645161	4.189	4.073	3.939	3.764	3.69	3.554
0.32258064516129	4.103	3.975	3.847	3.681	3.618	3.474
0.354838709677419	4.092	3.935	3.73	3.582	3.518	3.385
0.387096774193548	4.018	3.903	3.719	3.551	3.491	3.317
0.419354838709677	3.974	3.862	3.681	3.52	3.433	3.255
0.451612903225806	3.967	3.844	3.678	3.489	3.418	3.195
0.483870967741936	3.944	3.788	3.541	3.383	3.32	3.156
0.516129032258065	3.787	3.675	3.454	3.255	3.2	3.008
0.548387096774194	3.637	3.498	3.326	3.122	3.042	2.839
0.580645161290323	3.281	3.169	3.064	2.91	2.881	2.724

0.612903225806452	3.062	2.964	2.755	2.65	2.637	2.487
0.645161290322581	2.93	2.832	2.691	2.521	2.463	2.3
0.67741935483871	2.924	2.758	2.579	2.436	2.368	2.22
0.709677419354839	2.822	2.709	2.441	2.284	2.243	2.09
0.741935483870968	2.689	2.577	2.365	2.186	2.141	1.992
0.774193548387097	2.605	2.493	2.355	2.157	2.09	1.849
0.806451612903226	2.361	2.185	1.947	1.786	1.723	1.581
0.838709677419355	2.195	2.084	1.831	1.61	1.561	1.297
0.870967741935484	1.615	1.504	1.365	1.201	1.141	1.005
0.903225806451613	1.421	1.305	1.185	1.044	0.9858	0.8072
0.935483870967742	1.074	0.9642	0.8238	0.6624	0.6365	0.505
0.967741935483871	0.7587	0.6492	0.5074	0.3906	0.3707	0.2076
0.1	5.2414	5.0688	4.7307	4.4573	4.358	4.1931
				Average of yearly averages:		2.73342666666667

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenMIornamPdAir
Metfile: w14840.dvf
PRZM scenario: MInursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	
Application Efficiency:		APPEFF	0.95	fraction
Spray Drift	DRFT	0.05	fraction of application rate applied to pond	
Application Date	Date	30-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Ground Application to MI Ornamentals:

stored as difenMIornamPdGr.out
Chemical: difenoconazole
PRZM environment: MInursery no_irrig.txt modified Tueday, 17 April 2007 at 08:27:58
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w14840.dvf modified Wedday, 3 July 2002 at 09:05:38
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	0.5004	0.4331	0.3544	0.2595	0.2391	0.09222
1962	0.7932	0.7041	0.5083	0.4078	0.3843	0.2643
1963	0.6632	0.6337	0.5724	0.5291	0.5228	0.455
1964	0.6633	0.6405	0.6133	0.5806	0.5723	0.5511
1965	1.855	1.671	1.305	1.078	1.029	0.7563
1966	1.175	1.136	1.075	1.01	0.9901	0.9615
1967	2.171	2.005	1.631	1.388	1.332	1.16
1968	1.437	1.398	1.313	1.266	1.262	1.235
1969	1.611	1.55	1.455	1.363	1.334	1.272
1970	1.724	1.662	1.541	1.446	1.423	1.35
1971	1.596	1.554	1.484	1.429	1.418	1.381
1972	2.122	2.021	1.807	1.704	1.694	1.527
1973	2.056	2.008	1.884	1.833	1.816	1.728
1974	2.178	2.111	2.006	1.922	1.887	1.808
1975	2.931	2.768	2.42	2.219	2.166	1.948
1976	2.665	2.575	2.37	2.268	2.228	2.113
1977	2.18	2.159	2.117	2.094	2.089	2.044
1978	2.528	2.465	2.302	2.268	2.243	2.121
1979	2.304	2.28	2.26	2.22	2.215	2.16
1980	2.866	2.747	2.484	2.368	2.329	2.206
1981	2.769	2.679	2.496	2.39	2.371	2.28
1982	2.624	2.579	2.461	2.418	2.395	2.344
1983	2.935	2.832	2.594	2.456	2.433	2.348
1984	3.026	2.951	2.735	2.588	2.539	2.409
1985	2.99	2.898	2.705	2.631	2.607	2.469
1986	4.861	4.484	3.717	3.279	3.158	2.699
1987	4.211	3.982	3.49	3.239	3.169	2.961
1988	3.528	3.414	3.164	3.055	3.024	2.97
1989	3.835	3.685	3.365	3.195	3.18	3.034
1990	3.512	3.43	3.322	3.187	3.136	3.044

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	4.861	4.484	3.717	3.279	3.18	3.044
0.0645161290322581	4.211	3.982	3.49	3.239	3.169	3.034
0.0967741935483871	3.835	3.685	3.365	3.195	3.158	2.97
0.129032258064516	3.528	3.43	3.322	3.187	3.136	2.961
0.161290322580645	3.512	3.414	3.164	3.055	3.024	2.699
0.193548387096774	3.026	2.951	2.735	2.631	2.607	2.469
0.225806451612903	2.99	2.898	2.705	2.588	2.539	2.409
0.258064516129032	2.935	2.832	2.594	2.456	2.433	2.348
0.290322580645161	2.931	2.768	2.496	2.418	2.395	2.344
0.32258064516129	2.866	2.747	2.484	2.39	2.371	2.28
0.354838709677419	2.769	2.679	2.461	2.368	2.329	2.206
0.387096774193548	2.665	2.579	2.42	2.268	2.243	2.16
0.419354838709677	2.624	2.575	2.37	2.268	2.228	2.121
0.451612903225806	2.528	2.465	2.302	2.22	2.215	2.113
0.483870967741936	2.304	2.28	2.26	2.219	2.166	2.044
0.516129032258065	2.18	2.159	2.117	2.094	2.089	1.948
0.548387096774194	2.178	2.111	2.006	1.922	1.887	1.808
0.580645161290323	2.171	2.021	1.884	1.833	1.816	1.728
0.612903225806452	2.122	2.008	1.807	1.704	1.694	1.527
0.645161290322581	2.056	2.005	1.631	1.446	1.423	1.381
0.67741935483871	1.855	1.671	1.541	1.429	1.418	1.35
0.709677419354839	1.724	1.662	1.484	1.388	1.334	1.272
0.741935483870968	1.611	1.554	1.455	1.363	1.332	1.235
0.774193548387097	1.596	1.55	1.313	1.266	1.262	1.16
0.806451612903226	1.437	1.398	1.305	1.078	1.029	0.9615
0.838709677419355	1.175	1.136	1.075	1.01	0.9901	0.7563
0.870967741935484	0.7932	0.7041	0.6133	0.5806	0.5723	0.5511
0.903225806451613	0.6633	0.6405	0.5724	0.5291	0.5228	0.455
0.935483870967742	0.6632	0.6337	0.5083	0.4078	0.3843	0.2643
0.967741935483871	0.5004	0.4331	0.3544	0.2595	0.2391	0.09222

0.1	3.8043	3.6595	3.3607	3.1942	3.1558	2.9691

Average of yearly averages: 1.789714

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenMIornamPdGr
Metfile: w14840.dvf
PRZM scenario: MInursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	
Application Efficiency:		APPEFF	0.99	fraction
Spray Drift	DRFT	0.01	fraction of application rate applied to pond	
Application Date	Date	30-04	dd/mm or dd/mmm or dd-mm or dd-mmm	
Interval 1 interval	7	days	Set to 0 or delete line for single app.	
Interval 2 interval	7	days	Set to 0 or delete line for single app.	
Interval 3 interval	7	days	Set to 0 or delete line for single app.	
Record 17: FILTRA				
IPSCND	1			
UPTKF				
Record 18: PLVKRT				
PLDKRT				
FEXTRC	0.5			
Flag for Index Res. Run		IR	Pond	
Flag for runoff calc.	RUNOFF	none	none, monthly or total(average of entire run)	

Aerial Application to FL Ornamentals:

stored as difenFLornamPdAir.out
Chemical: difenoconazole
PRZM environment: FLnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:28:20
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w12839.dvf modified Wedday, 3 July 2002 at 09:04:28
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.844	1.597	1.248	0.9612	0.88	0.453
1962	2.943	2.626	2.111	1.61	1.555	1.135
1963	2.799	2.622	2.312	1.977	1.884	1.6
1964	4.579	4.145	3.204	2.788	2.742	2.191
1965	4.553	4.255	3.73	3.426	3.343	2.813
1966	6.464	5.887	4.932	4.571	4.351	3.622
1967	6.687	6.327	5.472	4.781	4.589	4.036
1968	6.381	6.014	5.81	5.323	5.159	4.477
1969	5.457	5.317	5.106	4.846	4.779	4.47
1970	5.387	5.206	4.985	4.655	4.504	4.222
1971	5.647	5.378	4.988	4.554	4.421	4.025
1972	5.813	5.553	4.933	4.522	4.409	4.001

1973	4.745	4.586	4.32	4.085	4.091	3.838
1974	4.962	4.756	4.387	3.929	3.935	3.646
1975	4.185	4.037	3.905	3.689	3.617	3.395
1976	4.408	4.261	3.93	3.71	3.648	3.355
1977	6.166	5.942	5.058	4.342	4.149	3.645
1978	4.436	4.261	3.973	3.756	3.648	3.459
1979	5.454	5.033	4.118	3.89	3.829	3.51
1980	4.503	4.386	4.174	4.02	3.945	3.64
1981	5.277	5.068	4.409	4.304	4.148	3.706
1982	5.39	5.11	4.66	4.347	4.194	3.834
1983	5.463	5.136	4.639	4.249	4.169	3.814
1984	5.765	5.451	4.767	4.466	4.363	3.906
1985	5.39	5.13	4.897	4.591	4.511	4.01
1986	5.574	5.29	4.864	4.491	4.387	4.032
1987	5.619	5.279	4.595	4.188	4.075	3.842
1988	5.599	5.407	4.874	4.483	4.382	3.891
1989	5.298	5.098	4.564	4.127	4.148	3.759
1990	5.188	5	4.51	4.185	4.119	3.759

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	6.687	6.327	5.81	5.323	5.159	4.477
0.0645161290322581	6.464	6.014	5.472	4.846	4.779	4.47
0.0967741935483871	6.381	5.942	5.106	4.781	4.589	4.222
0.129032258064516	6.166	5.887	5.058	4.655	4.511	4.036
0.161290322580645	5.813	5.553	4.988	4.591	4.504	4.032
0.193548387096774	5.765	5.451	4.985	4.571	4.421	4.025
0.225806451612903	5.647	5.407	4.933	4.554	4.409	4.01
0.258064516129032	5.619	5.378	4.932	4.522	4.387	4.001
0.290322580645161	5.599	5.317	4.897	4.491	4.382	3.906
0.32258064516129	5.574	5.29	4.874	4.483	4.363	3.891
0.354838709677419	5.463	5.279	4.864	4.466	4.351	3.842
0.387096774193548	5.457	5.206	4.767	4.347	4.194	3.838
0.419354838709677	5.454	5.136	4.66	4.342	4.169	3.834
0.451612903225806	5.39	5.13	4.639	4.304	4.149	3.814
0.483870967741936	5.39	5.11	4.595	4.249	4.148	3.759
0.516129032258065	5.387	5.098	4.564	4.188	4.148	3.759
0.548387096774194	5.298	5.068	4.51	4.185	4.119	3.706
0.580645161290323	5.277	5.033	4.409	4.127	4.091	3.646
0.612903225806452	5.188	5	4.387	4.085	4.075	3.645
0.645161290322581	4.962	4.756	4.32	4.02	3.945	3.64
0.67741935483871	4.745	4.586	4.174	3.929	3.935	3.622
0.709677419354839	4.579	4.386	4.118	3.89	3.829	3.51
0.741935483870968	4.553	4.261	3.973	3.756	3.648	3.459
0.774193548387097	4.503	4.261	3.93	3.71	3.648	3.395
0.806451612903226	4.436	4.255	3.905	3.689	3.617	3.355
0.838709677419355	4.408	4.145	3.73	3.426	3.343	2.813
0.870967741935484	4.185	4.037	3.204	2.788	2.742	2.191
0.903225806451613	2.943	2.626	2.312	1.977	1.884	1.6
0.935483870967742	2.799	2.622	2.111	1.61	1.555	1.135
0.967741935483871	1.844	1.597	1.248	0.9612	0.88	0.453
0.1	6.3595	5.9365	5.1012	4.7684	4.5812	4.2034

Average of yearly averages: 3.46953333333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenFLornamPdAir
Metfile: w12839.dvf
PRZM scenario: FLnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	

Henry's Law Const.		henry	8.9e-12	atm-m^3/mol		
Vapor Pressure		vapr	2.5e-10	torr		
Solubility	sol	150	mg/L			
Kd	Kd		mg/L			
Koc	Koc	5381	mg/L			
Photolysis half-life		kdp	228	days	Half-life	
Aerobic Aquatic Metabolism			kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism			kbacs	1110	days	Halfife
Aerobic Soil Metabolism			asm	313	days	Halfife
Hydrolysis:		pH 7	0	days	Half-life	
Method:	CAM	2	integer	See PRZM manual		
Incorporation Depth:		DEPI	0	cm		
Application Rate:		TAPP	0.15	kg/ha		
Application Efficiency:			APPEFF	0.95	fraction	
Spray Drift		DRFT	0.05	fraction of application rate applied to pond		
Application Date		Date	25-05	dd/mm or dd/mmm or dd-mm or dd-mmm		
Interval 1	interval	7	days	Set to 0 or delete line for single app.		
Interval 2	interval	7	days	Set to 0 or delete line for single app.		
Interval 3	interval	7	days	Set to 0 or delete line for single app.		
Record 17:	FILTRA					
	IPSCND	1				
	UPTKF					
Record 18:	PLVKRT					
	PLDKRT					
	FEXTRC	0.5				
Flag for Index Res. Run			IR	Pond		
Flag for runoff calc.		RUNOFF	none	none, monthly or total(average of entire run)		

Ground Application to FL Ornamentals:

stored as difenFLornamPdGr.out
Chemical: difenoconazole
PRZM environment: FLnursery no_irrig.txt modified Tueday, 17 April 2007 at 08:28:20
EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at 16:33:30
Metfile: w12839.dvf modified Wedday, 3 July 2002 at 09:04:28
Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	1.572	1.36	0.9175	0.7484	0.7006	0.3623
1962	2.545	2.239	1.739	1.386	1.342	0.9531
1963	2.572	2.389	2.067	1.723	1.628	1.342
1964	4.35	3.899	2.921	2.495	2.451	1.885
1965	4.286	3.976	3.433	3.111	3.029	2.478
1966	5.813	5.291	4.344	4.115	3.927	3.272
1967	6.156	5.69	4.907	4.322	4.157	3.666
1968	5.722	5.482	5.229	4.829	4.69	4.097
1969	4.748	4.649	4.437	4.318	4.266	4.069
1970	4.822	4.663	4.318	4.065	3.961	3.797
1971	5.068	4.819	4.32	4.009	3.907	3.583
1972	5.134	4.85	4.251	3.954	3.884	3.552
1973	4.309	4.144	3.865	3.625	3.588	3.375
1974	4.247	4.094	3.631	3.357	3.362	3.174
1975	3.637	3.495	3.317	3.103	3.034	2.913
1976	3.948	3.796	3.349	3.131	3.074	2.867
1977	5.45	5.252	4.309	3.717	3.566	3.162
1978	3.587	3.472	3.212	3.104	3.093	2.965
1979	5.122	4.684	3.735	3.318	3.257	3.017
1980	4.033	3.912	3.696	3.527	3.458	3.152
1981	4.841	4.625	3.942	3.843	3.688	3.219
1982	4.732	4.479	4.002	3.719	3.604	3.356
1983	4.629	4.367	3.888	3.643	3.603	3.335
1984	4.88	4.637	4.099	3.834	3.777	3.425
1985	4.928	4.674	4.425	4.114	4.039	3.529

1986	4.62	4.418	4.109	3.868	3.806	3.55
1987	5.037	4.708	4.054	3.662	3.567	3.358
1988	4.87	4.624	4.129	3.884	3.821	3.411
1989	4.725	4.539	4.009	3.619	3.646	3.28
1990	4.585	4.403	3.956	3.585	3.602	3.284

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	6.156	5.69	5.229	4.829	4.69	4.097
0.0645161290322581	5.813	5.482	4.907	4.322	4.266	4.069
0.0967741935483871	5.722	5.291	4.437	4.318	4.157	3.797
0.129032258064516	5.45	5.252	4.425	4.115	4.039	3.666
0.161290322580645	5.134	4.85	4.344	4.114	3.961	3.583
0.193548387096774	5.122	4.819	4.32	4.065	3.927	3.552
0.225806451612903	5.068	4.708	4.318	4.009	3.907	3.55
0.258064516129032	5.037	4.684	4.309	3.954	3.884	3.529
0.290322580645161	4.928	4.674	4.251	3.884	3.821	3.425
0.32258064516129	4.88	4.663	4.129	3.868	3.806	3.411
0.354838709677419	4.87	4.649	4.109	3.843	3.777	3.375
0.387096774193548	4.841	4.637	4.099	3.834	3.688	3.358
0.419354838709677	4.822	4.625	4.054	3.719	3.646	3.356
0.451612903225806	4.748	4.624	4.009	3.717	3.604	3.335
0.483870967741936	4.732	4.539	4.002	3.662	3.603	3.284
0.516129032258065	4.725	4.479	3.956	3.643	3.602	3.28
0.548387096774194	4.629	4.418	3.942	3.625	3.588	3.272
0.580645161290323	4.62	4.403	3.888	3.619	3.567	3.219
0.612903225806452	4.585	4.367	3.865	3.585	3.566	3.174
0.645161290322581	4.35	4.144	3.735	3.527	3.458	3.162
0.67741935483871	4.309	4.094	3.696	3.357	3.362	3.152
0.709677419354839	4.286	3.976	3.631	3.318	3.257	3.017
0.741935483870968	4.247	3.912	3.433	3.131	3.093	2.965
0.774193548387097	4.033	3.899	3.349	3.111	3.074	2.913
0.806451612903226	3.948	3.796	3.317	3.104	3.034	2.867
0.838709677419355	3.637	3.495	3.212	3.103	3.029	2.478
0.870967741935484	3.587	3.472	2.921	2.495	2.451	1.885
0.903225806451613	2.572	2.389	2.067	1.723	1.628	1.342
0.935483870967742	2.545	2.239	1.739	1.386	1.342	0.9531
0.967741935483871	1.572	1.36	0.9175	0.7484	0.7006	0.3623
0.1	5.6948	5.2871	4.4358	4.2977	4.1452	3.7839

Average of yearly averages: 3.04761333333333

Inputs generated by pe4.pl - 8-August-2003

Data used for this run:
Output File: difenFLornamPdGr
Metfile: w12839.dvf
PRZM scenario: FLnursery no_irrig.txt
EXAMS environment file: pond298.exv
Chemical Name: difenoconazole

Description	Variable Name	Value	Units	Comments
Molecular weight	mwt	406	g/mol	
Henry's Law Const.	henry	8.9e-12	atm-m^3/mol	
Vapor Pressure	vapr	2.5e-10	torr	
Solubility sol	150	mg/L		
Kd Kd		mg/L		
Koc Koc	5381	mg/L		
Photolysis half-life	kdp	228	days	Half-life
Aerobic Aquatic Metabolism	kbacw	556	days	Halfife
Anaerobic Aquatic Metabolism	kbacs	1110	days	Halfife
Aerobic Soil Metabolism	asm	313	days	Halfife
Hydrolysis:	pH 7	0	days	Half-life
Method: CAM	2	integer	See PRZM manual	
Incorporation Depth:	DEPI	0	cm	
Application Rate:	TAPP	0.15	kg/ha	

Application Efficiency:			APPEFF	0.99 fraction
Spray Drift		DRFT	0.01	fraction of application rate applied to pond
Application Date		Date	25-05	dd/mm or dd/mmm or dd-mm or dd-mmm
Interval 1	interval	7	days	Set to 0 or delete line for single app.
Interval 2	interval	7	days	Set to 0 or delete line for single app.
Interval 3	interval	7	days	Set to 0 or delete line for single app.
Record 17:	FILTRA			
	IPSCND	1		
	UPTKF			
Record 18:	PLVKRT			
	PLDKRT			
	FEXTRC	0.5		
Flag for Index Res. Run			IR	Pond
Flag for runoff calc.		RUNOFF	none	none, monthly or total(average of entire run)

APPENDIX E: Ecological Hazard Data

Table E-1: Acute Toxicity of Difenoconazole to Fish							
Species	**% A.I.**	**96-hr LC_{50}, mg/L (confidence interval)**	**NOAEC (mg/L)**	**Measured/nominal Flow-through /static**	**Toxicity Classification**	**MRID (study year)**	**Status**
Freshwater Fish							
Bluegill sunfish	96.1	1.2 (0.9, 1.7)[a]	0.52	Mean measured, Static	moderately toxic	422451-09 (1986)	Acceptable
Rainbow trout	96	0.81 (0.63, 1.2)[b]	0.35	Initial measured, Static	highly toxic	422451-07 (1987)	Acceptable
Rainbow trout	96.1	1.06 (0.98, 1.14)	<0.58	mean measured, flow through	moderately toxic	422451-08 (1990)	Acceptable
Estuarine/Marine Fish							
Sheepshead minnow	96.1	0.819 (0, +∞)[c]	0.325	Initial measured, static	highly toxic	422451-12 (1988)	Acceptable
Sheepshead minnow	96	1.1 (0.86, 1.5)[a]	0.27	Mean-measured, Flow through	moderately toxic	429067-02 (1993)	Acceptable

[a] There were no partial mortalities in these studies.
[b] There was only one partial mortality in this study.
[c] Binomial method used for LC_{50}.

Table E-2: Acute Toxicity of Difenoconazole to Invertebrates							
Species	**% A.I.**	**Toxicity endpoint, mg/L (confidence interval)**	**NOAEC (mg/L)**	**Measured/ nominal Flow-through /static**	**Toxicity Classification**	**MRID (year of citation)**	**Status**
Freshwater Invertebrates							
Daphnid	96.1	48hr LC_{50} = 0.77 (0.60, 0.95)	< 0.52	Mean measured, static	highly toxic	422451-10 (1986)	Acceptable
Estuarine/Marine Invertebrates							
Mysid	95	96hr LC_{50} = 0.150 (0.125, 0.194)	0.048	Mean measured, flow through	highly toxic	422451-11 (1990)	Acceptable
Eastern oyster (shell deposition	95	96hr EC_{50} >0.300	0.210	Mean measured, flow through	highly toxic	422451-13 (1990)	Acceptable
Eastern oyster (shell deposition	96	96hr EC_{50} = 0.424 (333, 539)	0.180	Mean measured, flow through	highly toxic	429067-01 (1993)	Acceptable

Table E-3: Chronic (Early-life) Toxicity of Difenoconazole to Freshwater Fish							
Species	**% a.i.**	**NOAEC (µg/L)**	**LOAEC (µg/L)**	**Study Properties**	**Most sensitive parameter**	**MRID (year of citation)**	**Status**
Fathead minnow	94.8	8.7	19	Mean-Measured Concentrations Flow-through	larval length at 30 days post-hatch	422541-15 (1990)	Supplemental (control contamination in two replicates and large relative standard deviation for fish weight in one control replicate)

Table E-4: Chronic (Early-life) Toxicity of Difenoconazole to Freshwater Invertebrates							
Species	**% a.i.**	**NOAEC (µg/L)**	**LOAEC (µg/L)**	**Study Properties**	**Most sensitive parameter**	**MRID (year of citation)**	**Status**
Daphnid	96.1	5.6	13	Mean-Measured Concentrations Flow-through	number of young/adult/ reproduction day and adult length	422541-14 (1988)	Acceptable (Upgraded see MRID 469501-32)

Table E-5: Chronic (Life Cycle) Toxicity of Difenoconazole to Estuarine/Marine Mysid							
Species	**% a.i.**	**NOAEC (µg/L)**	**LOAEC (µg/L)**	**Most sensitive parameters**	**Study Properties**	**MRID (year of citation)**	**Status**
Mysid	94.4	<0.115	0.115	Reproduction- number of young/adult/ reproduction day	Mean-Measured Concentrations Flow-through	469501-33 (2006)	Supplemental (definitive NOAEC not determined for repro, variability in test concentrations)
		0.311	0.786	Growth- male dry weight			

Table E-6. Nontarget Aquatic Plant Toxicity (Tier II) of Difenoconazole					
Species	**%A.I.**	**EC_{50}**	**NOAEC or EC_{05}**	**MRID**	**Classification**
FW Green Algae (*Pseudokirchneriella subcapitata*)	94.4	0.30 mg a.i./L	NOAEC = 0.15 mg a.i./L EC_{05} Not determined	469205-12	Acceptable
FW Blue-green Algae (*Anabaena flos-aquae*)	94.4	Not determined	NOAEC Not determined EC_{05} Not determined	469205-06	Invalid (instability of test substance and variability in test results)
FW Diatom (*Navicula pelliculosa*)	94.4	0.098 mg a.i./L	NOAEC = 0.053 mg a.i./L EC_{05} Not determined	469205-08	Acceptable
Marine Diatom (*Skeletonema costatum*)	94.4	0.43 mg a.i./L	NOAEC = <0.0063 mg a.i./L EC_{05} = 0.087 mg a.i./L	469205-10	Acceptable
Duckweed (*Lemna gibba*)	94.4	1.9 mg a.i./L	NOAEC = <0.11 mg a.i./L EC_{05} = 0.11 mg a.i./L	469205-04	Acceptable

Table E-7: Avian Acute Toxicity to Difenoconazole							
Species	**% A.I.**	**Toxicity Endpoint (95% confidence interval)**	**NOAEC/ NOAEL**	**Toxicity Classification**	**Toxicity symptoms**	**MRID**	**Status**
Acute Single Oral Dose							
Mallard duck	96.1	LD50 >2150 mg/kg-bwt	NOAEL = 2150 mg/kg-bwt	practically non-toxic	no mortality or clinical signs of toxicity	422451-05 (1988)	Acceptable
Acute Dietary							
Mallard duck	96.1	LC50 >5000 mg/kg-diet	NOAEC = 625 mg/kg-diet	practically non-toxic	reduction in body weight gain and food consumption	422451-04 (1988)	Acceptable
Bobwhite quail[a]	95.2	LC50 = 4579 mg/kg-diet (2500,+∞)	NOAEC = 625 mg/kg-diet	slightly toxic	reduction in body weight gain and food consumption	422451-03 (1988)	Acceptable

[a] There was only one partial mortality in this study. Binomial method used for LC_{50}.

Table E-8: Chronic Toxicity of Difenoconazole to Birds						
Species	**% a.i.**	**NOAEC (mg ai/kg-diet)**	**LOAEC (mg ai/kg-diet)**	**Effects**	**MRID (year of citation)**	**Status**
Mallard duck	91.9	125	625	egg shell thinning	422451-06 (1990)	Acceptable (Upgraded based on submission of raw data, see MRID 469205-01)
		21.9	108	Hatchling weight		
Bobwhite quail	94.3	108	539	Reduction in eggs laid, hatchling and 14-day survivor weight, and female weight gain	469502-02 (2000)	Acceptable

Table E-9: Mammalian Acute Oral Toxicity to Difenoconazole					
Species	**% a.i.**	**LD_{50} (mg/kg-bwt)**	**Toxicity Classification**	**MRID (year of citation)**	**Status[a]**
Rat	technical	1453 mg/kg bw	slightly toxic	420900-06 (1987)	Acceptable

[a] Acceptable/non-acceptable classification is from HED reviews.

Table E-10: Mammalian Developmental and Chronic Toxicity to Difenoconazole						
Test Type	**% a.i.**	**NOAEC (mg/kg-diet)**	**LOAEC (mg/kg-diet)**	**Effects**	**MRID (year of citation)**	**Status[a]**
2-generation reproductive (rats)	technical	parental= 25 reproductive = 25	parental = 250 reproductive =250	decreased maternal body weight gain, decreased pup weights at day 21	420900-18 (1988)	Acceptable

[a] Acceptable/non-acceptable classification is from HED reviews.

Table E-11 Acute Toxicity of Difenoconazole to Non-target Insects					
Species	**% a.i.**	**Toxicity endpoint**	**Toxicity classification**	**MRID (year of citation)**	**Status**
Acute Contact					
Honey bee	91.1	LD_{50} > 100 µg/bee	practically non-toxic	422451-24 (1989)	Acceptable

Table E-12: Acute Toxicity of Difenoconazole to Earthworms					
Species	**% a.i.**	**LD_{50} (mg/kg-dw)**	**NOAEC (mg/kg-dw)**	**MRID (year of citation)**	**Status**
Earthworm (*Eisenia foetida*)	96.1 (unlabelled) 97 (labeled)	> 610	610	422451-25 (1987)	Supplemental (duration of the test (14 days) was shorter than recommended (28 days)

Table E-13: Toxicity of Difenoconazole to Terrestrial Plants					
Species	**Purity**	**Endpoints**	**Results**	**MRID (year of citation)**	**Status**
Two monocots (Corn, *Zea mays* and Oat, *Avena fatua*) Four dicots (Turnip, *Brassica rapa*; Cucumber, *Cucumis sativus*; and Soybean, *Glycine max*; and Tomato, *Lycopersicon esculentum*)	250 g/L	Visible phytotoxicity (including emergence and mortality) of seedling emergence and vegetative vigor	No phytotoxic effects were observed in any species at the five treatments tested following pre- or post-emergence application (NOAEC > 0.44 lb a.i./A)	469502-03 (2004)	Supplemental (non GLP, limited number of species tested and growth and other required endpoints)

APPENDIX F: The Risk Quotient Method

The Risk Quotient Method is the means used by EFED to integrate the results of exposure and ecotoxicity data. For this method, risk quotients (RQs) are calculated by dividing exposure estimates by ecotoxicity values (i.e., RQ = EXPOSURE/TOXICITY), both acute and chronic. These RQs are then compared to OPP's levels of concern (LOCs). These LOCs are criteria used by OPP to indicate potential risk to non-target organisms and the need to consider regulatory action. EFED has defined LOCs for acute risk, potential restricted use classification, and for endangered species.

The criteria indicate that a pesticide used as directed has the potential to cause adverse effects on nontarget organisms. LOCs currently address the following risk presumption categories:

(1) acute - there is a potential for acute risk; regulatory action may be warranted in addition to restricted use classification;
(2) acute restricted use - the potential for acute risk is high, but this may be mitigated through restricted use classification
(3) acute endangered species - the potential for acute risk to endangered species is high, regulatory action may be warranted, and
(4) chronic risk - the potential for chronic risk is high, regulatory action may be warranted.

Currently, EFED does not perform assessments for chronic risk to plants, acute or chronic risks to non-target insects, or chronic risk from granular/bait formulations to mammalian or avian species.

The ecotoxicity test values (i.e., measurement endpoints) used in the acute and chronic risk quotients are derived from required studies. Examples of ecotoxicity values derived from short-term laboratory studies that assess acute effects are: (1) LC_{50} (fish and birds), (2) LD_{50} (birds and mammals), (3) EC_{50} (aquatic plants and aquatic invertebrates), and (4) EC_{25} (terrestrial plants). Examples of toxicity test effect levels derived from the results of long-term laboratory studies that assess chronic effects are: (1) LOAEL (birds, fish, and aquatic invertebrates), and (2) NOAEL (birds, fish and aquatic invertebrates). The NOAEL is generally used as the ecotoxicity test value in assessing chronic effects.

Risk presumptions, along with the corresponding RQs and LOCs are summarized in Table F1.

Table F-1: Risk Presumptions and LOCs		
Risk Presumption	**RQ**	**LOC**
Birds[1]		
Acute Risk	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.5
Acute Restricted Use	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day (or $LD_{50} < 50$ mg/kg)	0.2
Acute Endangered Species	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.1
Chronic Risk	EEC/NOAEC	1
Wild Mammals[1]		
Acute Risk	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.5
Acute Restricted Use	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day (or $LD_{50} < 50$ mg/kg)	0.2
Acute Endangered Species	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.1
Chronic Risk	EEC/NOAEC	1
Aquatic Animals[2]		
Acute Risk	EEC/LC_{50} or EC_{50}	0.5
Acute Restricted Use	EEC/LC_{50} or EC_{50}	0.1
Acute Endangered Species	EEC/LC_{50} or EC_{50}	0.05
Chronic Risk	EEC/NOAEC	1
Terrestrial and Semi-Aquatic Plants		
Acute Risk	EEC/EC_{25}	1
Acute Endangered Species	EEC/EC_{05} or NOAEC	1
Aquatic Plants[2]		
Acute Risk	EEC/EC_{50}	1
Acute Endangered Species	EEC/EC_{05} or NOAEC	1

1 LD_{50}/sqft = (mg/sqft) / (LD_{50} * wt. of animal)
LD_{50}/day = (mg of toxicant consumed/day) / (LD_{50} * wt. of animal)

2 EEC = (mg/L or µg/L) in water

APPENDIX G: LOCATES

Species Counts by State for Indicated Crops

No species were excluded.
Minimum of 1 Acre.
All Medium Types Reported

Ornamentals (bedding/garden plants, floriculture crops - bedding/garden plants, cut flowers& florist greens, foliage and potted flowering plants- total, flowers and florist greens - cut, nursery and greenhouse crops - other, nursery stock, potted flowering plants)

Pome Fruit (apples, pears, all)

Tuber Vegetables (artichokes, ginger root, potatoes, sweet potatoes)

Fruiting Vegetables (eggplant, peppers, bell, peppers, chile (all peppers - excluding bell), pimientos, tomatoes)

Sugar beets for sugar

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

Alabama

The taxa Amphibian has 2 species co-occurring with indicated crops.

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 10 species co-occurring with indicated crops.

The taxa Fish has 15 species co-occurring with indicated crops.

The taxa Mammal has 4 species co-occurring with indicated crops.

The taxa Marine mml has 2 species co-occurring with indicated crops.

The taxa Monocot has 3 species co-occurring with indicated crops.

The taxa Reptile has 8 species co-occurring with indicated crops.

Alaska

The taxa Marine mml has 4 species co-occurring with indicated crops.
The taxa Reptile has 1 species co-occurring with indicated crops.

Arizona

The taxa Amphibian has 2 species co-occurring with indicated crops.

The taxa Bird has 8 species co-occurring with indicated crops.

The taxa Dicot has 16 species co-occurring with indicated crops.

The taxa Fish has 18 species co-occurring with indicated crops.

The taxa Mammal has 9 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Reptile has 2 species co-occurring with indicated crops.

Arkansas

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Crustacean has 2 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Fish has 3 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

California

The taxa Amphibian has 6 species co-occurring with indicated crops.

The taxa Bird has 16 species co-occurring with indicated crops.

The taxa Crustacean has 9 species co-occurring with indicated crops.

The taxa Dicot has 161 species co-occurring with indicated crops.

The taxa Fish has 31 species co-occurring with indicated crops.

The taxa Mammal has 20 species co-occurring with indicated crops.

The taxa Marine mml has 5 species co-occurring with indicated crops.

The taxa Monocot has 18 species co-occurring with indicated crops.

The taxa Reptile has 11 species co-occurring with indicated crops.

Colorado

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 10 species co-occurring with indicated crops.

The taxa Fish has 6 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

Connecticut

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 1 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 1 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Monocot has 1 species co-occurring with indicated crops.

The taxa Reptile has 6 species co-occurring with indicated crops.

Delaware

The taxa Bird has 2 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

The taxa Reptile has 6 species co-occurring with indicated crops.

Florida

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 10 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 49 species co-occurring with indicated crops.

The taxa Fish has 4 species co-occurring with indicated crops.

The taxa Mammal has 13 species co-occurring with indicated crops.

The taxa Marine mml has 5 species co-occurring with indicated crops.

The taxa Monocot has 3 species co-occurring with indicated crops.

The taxa Reptile has 10 species co-occurring with indicated crops.

Georgia

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 5 species co-occurring with indicated crops.

The taxa Dicot has 11 species co-occurring with indicated crops.

The taxa Fish has 11 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

The taxa Marine mml has 4 species co-occurring with indicated crops.

The taxa Monocot has 6 species co-occurring with indicated crops.

The taxa Reptile has 6 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Bird has 32 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 233 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 2 species co-occurring with indicated crops.

The taxa Monocot has 22 species co-occurring with indicated crops.

The taxa Reptile has 4 species co-occurring with indicated crops.

Idaho

The taxa Bird has 2 species co-occurring with indicated crops.

The taxa Dicot has 3 species co-occurring with indicated crops.

The taxa Fish has 8 species co-occurring with indicated crops.

The taxa Mammal has 4 species co-occurring with indicated crops.

Illinois

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 7 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

Indiana

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

The taxa Reptile has 1 species co-occurring with indicated crops.

Iowa

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 3 species co-occurring with indicated crops.

The taxa Fish has 2 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

Kansas

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Dicot has 1 species co-occurring with indicated crops.

The taxa Fish has 4 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

Kentucky

The taxa Bird has 7 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 10 species co-occurring with indicated crops.

The taxa Fish has 5 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

Louisiana

The taxa Bird has 5 species co-occurring with indicated crops.

The taxa Dicot has 2 species co-occurring with indicated crops.

The taxa Fish has 2 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Reptile has 7 species co-occurring with indicated crops.

Maine

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 1 species co-occurring with indicated crops.

The taxa Fish has 2 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

The taxa Reptile has 1 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

Maryland

The taxa Bird has 2 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Fish has 2 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

The taxa Reptile has 5 species co-occurring with indicated crops.

Massachusetts

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Dicot has 1 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

The taxa Reptile has 6 species co-occurring with indicated crops.

Michigan

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

The taxa Monocot has 3 species co-occurring with indicated crops.

The taxa Reptile has 1 species co-occurring with indicated crops.

Minnesota

The taxa Bird has 2 species co-occurring with indicated crops.

The taxa Dicot has 2 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 6 species co-occurring with indicated crops.

The taxa Dicot has 2 species co-occurring with indicated crops.

The taxa Fish has 3 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

The taxa Marine mml has 2 species co-occurring with indicated crops.

The taxa Reptile has 9 species co-occurring with indicated crops.

Missouri

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 7 species co-occurring with indicated crops.

The taxa Fish has 7 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

Montana

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Dicot has 2 species co-occurring with indicated crops.

The taxa Fish has 5 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

Nebraska

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Dicot has 2 species co-occurring with indicated crops.

The taxa Fish has 2 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

Nevada

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 8 species co-occurring with indicated crops.

The taxa Fish has 23 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Monocot has 1 species co-occurring with indicated crops.

The taxa Reptile has 1 species co-occurring with indicated crops.

New Hampshire

The taxa Bird has 1 species co-occurring with indicated crops.

The taxa Dicot has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 1 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

The taxa Reptile has 1 species co-occurring with indicated crops.

New Jersey

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 2 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Monocot has 3 species co-occurring with indicated crops.

The taxa Reptile has 5 species co-occurring with indicated crops.

New Mexico

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 7 species co-occurring with indicated crops.

The taxa Crustacean has 2 species co-occurring with indicated crops.

The taxa Dicot has 13 species co-occurring with indicated crops.

The taxa Fish has 13 species co-occurring with indicated crops.

The taxa Mammal has 5 species co-occurring with indicated crops.

The taxa Reptile has 1 species co-occurring with indicated crops.

New York

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

The taxa Reptile has 6 species co-occurring with indicated crops.

North Carolina

The taxa Bird has 5 species co-occurring with indicated crops.

The taxa Dicot has 21 species co-occurring with indicated crops.

The taxa Fish has 4 species co-occurring with indicated crops.

The taxa Mammal has 4 species co-occurring with indicated crops.

The taxa Marine mml has 4 species co-occurring with indicated crops.

The taxa Monocot has 5 species co-occurring with indicated crops.

The taxa Reptile has 5 species co-occurring with indicated crops.

North Dakota

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

Ohio

The taxa Bird has 2 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

The taxa Reptile has 2 species co-occurring with indicated crops.

Oklahoma

The taxa Bird has 7 species co-occurring with indicated crops.

The taxa Fish has 4 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Bird has 5 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 11 species co-occurring with indicated crops.

The taxa Fish has 22 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

The taxa Reptile has 3 species co-occurring with indicated crops.

Pennsylvania

The taxa Bird has 2 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

The taxa Reptile has 1 species co-occurring with indicated crops.

Rhode Island

The taxa Bird has 1 species co-occurring with indicated crops.

The taxa Dicot has 1 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

The taxa Reptile has 4 species co-occurring with indicated crops.

South Carolina

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 5 species co-occurring with indicated crops.

The taxa Dicot has 12 species co-occurring with indicated crops.

The taxa Fish has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Marine mml has 4 species co-occurring with indicated crops.

The taxa Monocot has 6 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Reptile has 6 species co-occurring with indicated crops.

South Dakota

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Fish has 2 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

Tennessee

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 17 species co-occurring with indicated crops.

The taxa Fish has 16 species co-occurring with indicated crops.

The taxa Mammal has 3 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

Texas

The taxa Amphibian has 4 species co-occurring with indicated crops.

The taxa Bird has 13 species co-occurring with indicated crops.

The taxa Crustacean has 1 species co-occurring with indicated crops.

The taxa Dicot has 27 species co-occurring with indicated crops.

The taxa Fish has 8 species co-occurring with indicated crops.

The taxa Mammal has 5 species co-occurring with indicated crops.

The taxa Marine mml has 2 species co-occurring with indicated crops.

The taxa Monocot has 3 species co-occurring with indicated crops.

The taxa Reptile has 6 species co-occurring with indicated crops.

Utah

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Dicot has 22 species co-occurring with indicated crops.

The taxa Fish has 8 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

The taxa Reptile has 1 species co-occurring with indicated crops.

Vermont

The taxa Bird has 1 species co-occurring with indicated crops.

The taxa Dicot has 1 species co-occurring with indicated crops.

The taxa Mammal has 1 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

Virginia

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 3 species co-occurring with indicated crops.

The taxa Crustacean has 2 species co-occurring with indicated crops.

The taxa Dicot has 13 species co-occurring with indicated crops.

The taxa Fish has 7 species co-occurring with indicated crops.

The taxa Mammal has 5 species co-occurring with indicated crops.

The taxa Marine mml has 3 species co-occurring with indicated crops.

The taxa Monocot has 4 species co-occurring with indicated crops.

The taxa Reptile has 5 species co-occurring with indicated crops.

Washington

The taxa Bird has 5 species co-occurring with indicated crops.

The taxa Dicot has 7 species co-occurring with indicated crops.

The taxa Fish has 19 species co-occurring with indicated crops.

The taxa Mammal has 5 species co-occurring with indicated crops.

The taxa Marine mml has 2 species co-occurring with indicated crops.

The taxa Reptile has 2 species co-occurring with indicated crops.

West Virginia

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 1 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Mammal has 5 species co-occurring with indicated crops.

The taxa Monocot has 1 species co-occurring with indicated crops.

AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY

Wisconsin

The taxa Bird has 4 species co-occurring with indicated crops.

The taxa Dicot has 4 species co-occurring with indicated crops.

The taxa Mammal has 2 species co-occurring with indicated crops.

The taxa Monocot has 2 species co-occurring with indicated crops.

Wyoming

The taxa Amphibian has 1 species co-occurring with indicated crops.

The taxa Bird has 1 species co-occurring with indicated crops.

The taxa Dicot has 2 species co-occurring with indicated crops.

The taxa Fish has 2 species co-occurring with indicated crops.

The taxa Mammal has 4 species co-occurring with indicated crops.

No species were excluded.

Dispersed species included in report.